

# ECHO IRELAND

IRISH RADIO TRANSMITTERS SOCIETY

Spring 2018 - 86 YEARS



Coolmine Rally  
February 2018



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John McCarthy EI8JA
Tom McDermott EI9CJ
Larry McGriskin EI9CN
Pat O'Connor EI9HX



# News from around the Clubs

## Shannon Basin Radio Club

### Brian Canning EI8IU

The Shannon Basin Radio Club held its AGM in December in the Shamrock Lodge Hotel in Athlone. There was a good attendance with several new members joining.

Enda EI2II gave a very enjoyable presentation on the EIDX Groups Dxpedition to Nepal. There were also lengthy discussions on the FT8 mode with a lot of members using this new mode, as well as several antenna issues being debated. Finger food was served and a most enjoyable evening was had by all.

The following officers were elected -

Chairperson:	Pat EI9HX
Secretary:	Brian EI8IU
Joint Treasurers:	Fergus EI6IB and Brian EI8IU
PRO:	Pat EI9HX
QSL and Website Manager:	Anthony EI6GGB

Our thanks goes to the outgoing officers.

Plans were made for taking part in the upcoming EI contests. We will have a table at the upcoming rally in Galway, and look forward to meeting everybody there.

We would also like to wish the EIDX Group the best of luck on their DXpedition to Malawi where several of our club members will be taking part.

Please see [www.shannonbasinradioclub.com](http://www.shannonbasinradioclub.com) for details of upcoming events, meetings and contests.



*Enda EI2II giving a presentation on the EIDX Group's Dxpedition to Nepal*



*Back row l to r: Enda EI2II, Mick EI4AL, Brian EI8IU, Fergus EI6IB, Pat EI9HX, Richard EI5GUB, Nial EI4CF*

*Front Row l to r: James (SWL), Paul (SWL), Tom EI4CHB, Owen EI4GGB, Tom (SWL), Anthony EI6GGB*

## Limerick Radio Club

### Simon Kenny EI7ALB

There was a good attendance at the Limerick Radio Club AGM, which was held on the 8th February. After 7 years Simon EI7ALB has stepped down from the Chairmanship and Alan EI8EM from the Committee.

It was a very busy year for the club with the commitment to the Wild Atlantic Way initiative, the ongoing difficulties with the Tountinna 2m repeater site, field activities such as the IL&LW at Loop Head, and another very successful 2017 LRC Rally.

The AGM proposed a vote of thanks to the outgoing committee.

The club has gained three new members going into 2018.

The following have been elected to the LRC Committee for the coming twelve months.

Chairman:	Harry O'Loughlin EI2KL
Hon Secretary:	Michael Kirwan EI3KO
Hon Treasurer:	Tony Condon EI2AW

Committee Members:

Michael Kingston EI2IX, Liam Mangan EI4GB  
Liam Rainford EI7DSB, Albert Price EI5HXB

QSL Manager: Albert Price EI5HXB

Trustees: Dermot Gleeson EI2GT  
Gerry Gervin EI8CC,  
Simon Kenny EI7ALB

## Front Cover Photos : EI7GY

### Row 1

Karen EI2DW & Tom EI7HT  
Noel EI6HW & Dave EI4BZ

### Row 2

Stephen MI6CQS, son of Tony EI4DIB (SK) with some of his late father's gear  
Brendan EI4BB & Joe EI6EG  
Ronnie EI9ED

### Row 3

Colm EI4KO, Keith EI5KO & Kevin EI3EU  
Dave EI7BFB  
Declan EI6FR & Jim EI8GS

### Row 4

Dermot EI4ESB discussing a possible purchase with Iggi Clarke  
Robert EI5KH  
Martin EI9KG  
Mark EI6HPB & John EI7IG

## Dundalk Amateur Radio Society

### Brian Whelan EI8EJB

On Wednesday evening, 17<sup>th</sup> January, the Dundalk Amateur Radio Society held a Bring & Buy Sale to try to raise much needed funds for the club.

The sale was well advertised, especially on social media and as a result there was a very healthy turn out on the night. Many of those attending submitted items to be sold, and sums of money changed hands as items were purchased during the evening.

There were both radio and non-radio related items for sale and thanks to everyone who either contributed things to be sold or bought items as we raised a significant sum of cash which has kept the wolf from the door, but more importantly, kept our Treasurer Jim EI2HJB happy!

The club is looking forward to the 2018 season with already well advanced projects to be brought to fruition in the very near future...

*Watch this space!*

## Tipperary Amateur Radio Group

### Ronan Daly EI4KN

On Thursday 14th December last, members of the Tipperary Amateur Radio Group met at The Park Hotel in Clonmel for their Annual General Meeting. This was a well attended meeting with group members travelling from counties Kilkenny, Waterford, and Cork joining their Tipperary colleagues.

Hugh EI2HI chaired this very productive meeting with John EI7IG reading the minutes from last years AGM. The group treasurer Thomas EI2IT reported a healthy financial situation. A review of the year and the group activities was then discussed at length.

The new incoming committee was then elected and it was agreed that the venue for all group meetings in 2018 will continue to be held at the Park Hotel, Clonmel, Co Tipperary.

Paul EI3ENB will continue as the Group QSL Manager and Seamus EI8EPB as Group Technical Advisor. The meeting concluded at 11pm when Hugh EI2HI thanked all for their input and attendance.

The new committee was elected as follows:-

Chairman:	Hugh O'Donnell EI2HI
Vice Chairman:	Andy Jay EI5JF
Secretary:	John Ronan EI7IG
Treasurer:	Thomas Hallinan EI2IT
Group PRO:	Ronan Daly EI4KN

For further information about the Group go to their website [www.ei7trg.ie](http://www.ei7trg.ie)

## Mayo Radio Experimenters Network

### Dominic Curtin EI9JS

Mayo Radio Experimenters were QRV as EI0M/P in the IRTS 80m Counties Contest on January 1st from locator square IO53JW, Co. Mayo.

The hardy operators for the day were Jimmy EI2GCB, Dominic EI9JS, Padraic EI9JA and Dominic's two dogs. Despite the wind, cold and showers of rain an 80m doublet antenna was erected in a short time on a mast supported by a drive-on stand under the wheel of a van. This was coupled by a Z-match to one of the club's Icom IC7300. Conditions were good and strong signals were heard from around the country. 22 counties and 5 DXCC entities were worked. Good band conditions prevailed with 59 QSOs around EI/GI and a number of QSOs with stations outside EI/GI, PA being the furthest.

This was a very enjoyable contest and a great start to 2018. Hopefully this is the first of many portable activations for this coming year and again thanks to all that made it into the log.

The club holds a monthly competition to create on-air activity by members throughout the year. This years result is.

1st	Dominic	EI9JS
2nd	John	EI7FAB
3rd	Padraic	EI9JA

There was a good representation from the club at the Coolmine rally this year. Many thanks from the club to the organizers for and very good rally and a great day out.

More information and pictures can be found at the clubs web pages [ei7mre.org](http://ei7mre.org). Have a look at the galleries page as a lot of archive pictures have been added.



### Echo Ireland - Summer 2018

Copy deadline - **15th May**  
Articles to [newsteam@irts.ie](mailto:newsteam@irts.ie)

Please read the recommended submission standards at the back of each edition

## North Cork Radio Group

### Edwin van Mierlo EI2HEB

The North Cork Radio Group ([www.ncrg.ie](http://www.ncrg.ie)) is proud to announce to activate Blackrock Castle Observatory ([www.bco.ie](http://www.bco.ie)) on Monday 19th March 2018. We will be operating activating the castle under the World Castles Award ([www.wcagroup.org](http://www.wcagroup.org)), an active organisation promoting castles worldwide. It is open for the public from 10am.

The NCRG will be operating HF mainly, but will have show case equipment, go-boxes and other gadgets to show to the public.

Date: 19th March 2018  
Time: 10.00—16.00 UTC (QRV 11.00am UTC)  
Call: EI1NC/P  
Grid: IO51tv  
WCA: EI-00055  
IOTA: EU-115  
WAI: W76

The Blackrock Observatory has kindly offered space to hold a "Ham Radio Workshop" as detailed on their webpage: [www.bco.ie/events/ham-radio-workshop/](http://www.bco.ie/events/ham-radio-workshop/)

The North Cork Radio Group has a long-standing relationship with the Blackrock Observatory and has activated the castle many times in the past. Previous activations took place under the CASHOTA (Castles and Stately Homes on the Air), however that program is in decline the last couple of years.

Promoting amateur radio is one of the founding principles of the North Cork Radio Group. This event is open for the public, for those who would like to learn more about amateur radio, or even "have a go themselves".

The NCRG would like to see many of you there on the day, or on the air !

## Kerry Amateur Radio Group

### John Costello EI9ESB

The Kerry Amateur Radio Group are busy gearing up for the coming year. Things kicked off with a great attendance at a vibrant and lively Annual General Meeting on Saturday 27th January held in the Fire Station in Castleisland, Co. Kerry. Club members enjoyed the chance to catch up with each other over a cup of tea and a few chocolate biscuits in the comfortable surroundings of the Fire Station classroom.

Events from the past year were profiled, leading to a very good and productive discussion for events forthcoming in 2018 and even into 2019. A calendar of these events has been sent to all members.

The Expeditionary Radio Team are expecting a busy year with many portable and field events planned including Counties Contests, International Marconi Day which this year will see the 99th Anniversary of the first East to West transatlantic voice transmission between Nova Scotia in Newfoundland and

Ballybunnion in County Kerry, the activation of the Transatlantic Cable Station on Valentia Island celebrating the Transatlantic cable that formerly connected Europe to the Americas, International Lighthouse and Lightship Weekend at the Cromwell Point Lighthouse on Valentia Island, exhibiting at SciFest held in Tralee Institute of Technology and the Maurice Collins Vintage Rally held in Ardfert, as well as participating in many field days and portable operations. If sufficient demand exists, the ERT will hold a rigging course to ensure that members new to the ERT are capable of rigging to the strict standard we work to.

This sustained level of activity in 2018 means that the Club Catering Corps are expected to be even busier this coming year with increased numbers attending field events over the last 12 months. The club portable kitchen is going to be overhauled with a new exciting menu planned. Event attendees will be able to radio in their order directly to the chef and have their meal served at the operating station if they wish, enabling them to keep the contact rate up or enjoy any rare DX they may be working. New members are welcome to the Catering Corps as we've found that on field days and we've found that well fed members are happy members and happy members are productive operators. It's a real simple formula. It adds to the social side of field days and many a tale has been told over an evening meal served up by Head Chef Billa at our events around the dying embers of a BBQ.

A club stand at radio rallies was discussed and it is hoped to exhibit at as many rallies as possible this year. Great commitment was received from the membership in this regard.

Also discussed at the AGM was the issue surrounding insurance. Whilst we hold an insurance policy, it was debated that our national representative society, the Irish Radio Transmitters Society, should be doing more to offer a group insurance policy covering affiliated clubs. This is available already from the likes of the RSGB and other national representative bodies offer cover to their membership so it was discussed why our national society have not done what so many other member representative bodies have done. No doubt this debate will continue further.

All attending the AGM agreed that a very busy and successful year was had with events, meetings and demonstrations held to cater for all interests within our hobby.

The following Club Officers were elected unopposed for 2018:

Chairman / QSL manager:	Declan Horan EI9FVB
Treasurer / Chef:	Billa O'Connor EI7CQB
Secretary / PRO:	John Costello EI9ESB

It was decided to invite expressions of interest for classes or tutorials for the Amateur Radio Licence examination and to that end a short piece advertising for expressions of interest was posted on the Kerry Amateur Radio Group YouTube channel which was then linked to social media. Anyone in the region interested in registering their interest is encouraged to email the club via [ei1karg@gmail.com](mailto:ei1karg@gmail.com)

Details of meetings and participation in events are published on the club website at [www.kerryamateurradiogroup.com](http://www.kerryamateurradiogroup.com) on our Facebook page and the club YouTube channel at [www.youtube.com/user/KerryAmateurRadio](http://www.youtube.com/user/KerryAmateurRadio)

All are welcome to attend, new members are encouraged.



## Cork Radio Club

### Dave Moore EI4BZ

Members of Cork Radio Club meet on the second Wednesday every month in Carrigtwohill Community Centre at 8.00pm.



*Marconi House, Crookhaven for IMD 2017*

Plans are well advanced for International Marconi Day in 2018 which this year is on Saturday April 21<sup>st</sup>. Marconi House in Crookhaven has been booked for the Friday and Saturday night and as places are limited, members should indicate if they intend travelling as soon as possible. The first Marconi Station in Crookhaven was set up in the grounds of Marconi House but later was moved to a better location on Brow Head.

Mentoring for the HAREC Examination is ongoing and new students are more than welcome to join in. We are aiming for the examination in June.

The next meeting will be the Annual General Meeting which will be held on Wednesday March 14<sup>th</sup>.

New members will be made very welcome. Contact the club by email at [info@corkradioclub.ie](mailto:info@corkradioclub.ie) or by telephone on 087-629 0574.



*EI8GS, EI5GSB, EI3GS prepare the antenna for IMD 2017*



*Sean EI3GS at IMD 2017*

## Mid Ulster Amateur Radio Club

### Dave Parkinson 2I0SJV

Over the next number of months Mid-Ulster Amateur Radio Club has a number of speakers; everyone is welcome!

The Sunday afternoon programme starts at 3 pm and is as follows:

<b>11th March</b>	John McCullough GI4BWM on DMR
<b>8th April</b>	Philip Hosey MI0MSO RSGB Region 8 Manager
<b>20th May</b>	Paul Lewis MI1AIB WAB & BYLARA talk
<b>10th June</b>	talk on Digital Selective Calling

Everyone is welcome, both members and visitors.

For further information contact the club secretary at [muarc.secretary@yahoo.co.uk](mailto:muarc.secretary@yahoo.co.uk)

Club website: [www.muarc.com](http://www.muarc.com)

## Wexford Wireless Club

### Michael Fitzgerald EI9GGB

On Wednesday 7th of March, John Tubbritt EI3HQB will give a show and tell about a tilt over telescopic mast that he has recently built over the last few months. For amateur radio operators a mast like this is a great addition to a station enabling the amateur to perform maintenance tasks and to let down antennas with ease if adverse weather is on its way!

The talk will start at 2030 sharp, all club members or anyone interested is asked to attend.

Wexford Wireless Club hold weekly meetings every Wednesday evening from 2000 to 2200 in Gorey Scout Group Hall just off Esmonde Street in Gorey, Co Wexford; everyone is as always very welcome

For more information about the club please contact the club secretary Michael Fitzgerald EI9GGB at QTHR or by dropping an email to [Wexfordwirelessclub@live.ie](mailto:Wexfordwirelessclub@live.ie)



# Sending Signals via Satellites (or How to work DX with 5 watts of VHF)

Keith Crittenden EI5KJ [keithcrittenden\[at\]gliderireland.net](mailto:keithcrittenden[at]gliderireland.net)

If, when you first read this article, you find it a little dull and uninteresting I'm advising readers to take a suitable pause, have a cuppa and a biscuit,... (maybe a chocie biscuit...or even two!) and read it again.. Hopefully you will find it a little more 'inspirational' second time around.

## Basic Aspects

Before we can get down to the nitty-gritty of talking to amateurs via space communication we need to understand something of the basics. So to start, here are some facts about satellite operation. (Please try not to fall asleep)

At time of writing all working amateur satellites are in what's called, Low Earth Orbit (They are "LEO" satellites) Simply put, this means they whizz around the earth at the rate of one orbit every 90 to 120 minutes. The time a satellite actually takes is known as that satellites orbital period, or simply its "period."

The area beneath the satellite, known as its footprint, is the area on the earth's surface within which amateurs can communicate with each other via that satellite. Different satellites have different size footprints depending on their height above the earth. (The higher the bird, the larger the footprint) Any stations within that footprint can use the satellite, provided they have the right equipment and direct line-of-sight of the area of sky where the satellite is.

Unlike terrestrial repeaters which normally receive and transmit within the same frequency band, satellites use transponders with an uplink in one band for receiving signals, and a downlink, for re-transmitting those signals back to earth, in another band. The most commonly used frequency bands are the 2m and 70cm bands. However not all satellites use these bands in the same way. Some have a 2m uplink and 70cms downlink, (known as V/U mode) while others have a 70cms uplink and 2m downlink ( U/V mode).

Of course all this information is of little value unless you know when your location is going to be within a particular satellite's footprint. There are a number of websites that will give predictions of amateur satellites orbits. Here's one that I use, [www.N2YO.com](http://www.N2YO.com) (opposite column). After entering your location details it will give you predictions for any amateur satellite ( and others, including the International Space Station) for the following ten days. An interesting point to note when looking at such predictions is under the column marked "EL" (elevation) This tells you the angle of the satellite, at the specified time, above the horizon. It's useful to know this as the higher the angle, the closer the satellite will be to you and the consequently stronger signal you will receive. At 90 degrees elevation the satellite will be directly overhead and will never be closer to you. (Unless it's falling out of orbit....in which case my advice is, duck!)

Finally then, we come to the slightly tricky of matter of the Doppler Effect. To explain briefly: Because LEO satellites are moving so fast relative to the earth's surface, (normally around 7km per second,) an 'inconvenience' known as the Doppler Effect has to be taken into account. This effect is the same one that causes the sound of a fast car to change tone as it passes you. I'll cover exactly how we do that a little later on, but just bear it in mind for now.

So there you have it, these are the basic aspect of satellite operating. Still awake?

## Equipment Needed

Now that you know something about satellites, the next matter to cover is what equipment will you need? Well, that depends on how you intend to operate. A simple duplex/dual band hand-held rig can be used for satellites that operate on FM. It's preferable to be able to hear your own signal coming back from the satellite so a rig (or setup) that is full-duplex is best. "What does 'full-duplex' mean?" you ask. It means that you can listen to the downlink at the same time as you're

Date	Local time	Az	Local time	Az	El	Local time	Az	Mag	Info
8-Dec 00:37	00:45	SE	131°	51°	00:49	NE	46°	-	Map and details
8-Dec 02:18	02:23	WSW	257°	33°	02:29	NE	42°	-	Map and details
8-Dec 04:00	04:05	N	17°	04:11	NE	53°	-	-	Map and details
8-Dec 05:41	05:47	NNE	20°	05:53	E	0°	-	-	Map and details
8-Dec 07:22	07:28	NE	42°	07:35	SE	121°	-	-	Map and details
8-Dec 09:02	09:09	SW	237°	36°	09:15	S	165°	-	Map and details
8-Dec 23:23	23:28	ESE	112°	17°	23:33	NE	50°	-	Map and details
9-Dec 01:02	01:08	NW	300°	77°	01:14	NE	43°	-	Map and details
9-Dec 02:43	02:48	NNW	335°	23°	02:55	NE	45°	-	Map and details
9-Dec 04:25	04:31	N	2°	04:36	ENE	62°	-	-	Map and details
9-Dec 06:06	06:12	NNE	24°	06:19	E	65°	-	-	Map and details
9-Dec 07:47	07:53	NW	318°	87°	08:00	SE	139°	-	Map and details
9-Dec 09:27	09:33	WSW	246°	19°	09:39	S	-	-	Map and details
9-Dec 23:47	23:53	ESE	119°	36°	23:56	NE	49°	-	Map and details
10-Dec 01:27	01:33	NW	326°	41°	01:39	NE	42°	-	Map and details
10-Dec 03:09	03:14	N	18°	03:20	NE	49°	-	-	Map and details

The N2YO.com page for satellite predictions. This particular one was for AO-85. (Also known as Fox 1)



Antennas don't have to be remotely controlled. Securing them in a favourable position and waiting for the footprint to come within the antenna's beam width has produced many contacts for me.



transmitting the uplink. In other words, you can hear your own signals coming back from the satellite. Let me stress that this aspect is not essential, many ops use FM birds in the same way as terrestrial repeaters, but if you can operate full-duplex it will make life a little easier. Full-duplex rigs such as the TS-2000 or older FT-847 are not very prolific so an easier way to achieve simultaneous transmission and reception is to use a separate transmitter and receiver.

Turning to the matter of antennas, a commercially produced or home brewed 2 or 3-element yagi (hand-held, if you like) will do the trick. Although hand-held antennas certainly work, using them during inclement weather can prove somewhat 'uncomfortable.' So rather than standing around in the great outdoors waving antennas sky-ways, permanent exterior aerials are preferable. Simple verticals will work quite well. "Egg Beater" designs can produce slightly better results. However to work the satellites when they are furthest away from you (to get the best DX) designs which offer a few db of gain tend to prove best for pulling in, what can be, quite weak signals. The ability to move the aerials in azimuth (horizontally) allowing you to track the satellites across the sky is also advantageous although, once again, not essential. I've worked many satellites with static antennas by simply waiting for a footprint to come within the beam width of the antennas. I found that on average this method gave me approx ten minutes of operating time.

As a lad I remember the Soviet Union launching the first man-made satellite. I was told that satellite communication, were it ever to become available for civilian use, could stop the constant 'fading' of Radio Luxembourg which was broadcast in the medium wave band. This matter was of great interest to me because at the time Luxembourg was the only station broadcasting pop (rock 'n' roll) music. I decided I needed to learn more about this topic and read as much as I could until a certain crucial event in my life. I discovered Girls! At that point all thoughts of propagation were cast aside, and satellites took a decidedly 'back seat' preference in my life. However somewhere among the dozen or so grey cells in my head the concept of sending signals into space to have them returned to earth held a fascination for me. Fast forward a 'few' years to 2013 and that's when I started "Chasing the Birds" as satellite operating is often known.



*On a frosty morning in Nov 2013 I started listening for satellites. My 9 element antenna was bit OTT for LEO birds but I didn't know that at the time. I was just eager to get back in the warm, brrrr!*

(Which is kind of ironic because in my day girls were often referred to as 'birds'..... and my experience of chasing them, is a story not suitable for publication here! )

### How to operate through LEO satellites

Meanwhile, back in the present day..... for ease of explanation I'm going to divide ham satellites into two types. Those that use FM, and those that use SSB/CW. As every satellite has its own operating criteria you will need to check the exact uplink / downlink/ beacon frequencies for each one. Try [www.amsat.org/two-way-satellites/](http://www.amsat.org/two-way-satellites/) or simply google "Amateur satellite (and its name)"

### FM Satellites

Currently there are three operational FM birds orbiting the earth. (FM bird? = satellite carrying a non-linear, cross-band repeater. .... Phew! That was a mouthful wasn't it.). AO-85, AO-91 and the oldest SO-50. Like most amateur satellites they can be known by more than one title depending on who built them, who paid for them, or other reasons. For instance SO-50 is sometimes referred to as Saudi-sat 1C (Guess who financed it.) AO-85 and AO-91 can also be known as Fox1 & Fox1B respectively. Like terrestrial repeaters, FM birds only have one channel.

Lets have a look at AO-85, as an example. It has a vocal identifying beacon that transmits every three or four minutes. If no one is using the bird then a little female voice declares, "Hi, this is amateur radio satellite Fox 1." This is useful because if you can hear the beacon then you can hear the downlink and you are half way to knowing that you can operate through the satellite. If you give it a call and hear your own signal coming back then others can hear you too, and you'll be operational via satellite! Point to note however. When a satellite is approaching your location it's best to listen a few kHz higher than the actual beacon frequency because of this 'thing' I mentioned earlier called the Doppler Effect, sometimes known as Doppler Shift. Want to know more? of course you do! Here follows a quick history lesson.

In 1841 a chap by the name Christian Doppler declared to the world that, **"The observed frequency of a wave depends on the relative speed of the source and the observer"**

Although this caused a lot of scientific discussion I don't actually remember the event myself, (I think I must have been away at the time) but what it means is that when a satellite approaches your location its signals will be received at a slightly higher frequency, and as the satellite goes away from you the signals will be slightly lower. To put this into actual figures, let's suppose a satellite were transmitting on 145.660MHz. To be able to hear that signal when the satellite is approaching you then you might have to tune your receiver to somewhere between (say) 145.660 and 145.665MHz. When the satellite is closest to you, listen on 145.660MHz, and when it's moving away tune between 145.660 and 145.655MHz. The actual amount of Doppler shift is dependent on, (a) the frequency of the signal (the shift is greater at UHF than VHF) and (b) the speed of the satellite relative to your location.

So when you're listening for a satellite it's helpful to know whether it's approaching you, or receding from you so you know which frequencies to listen to. To repeat: If it's approaching then tune your receiver to a few kHz high, when closest to you listen on the specific frequency, and if it's



going away tune a few kHz lower. "High to low is the way they go".

Most FM rigs allow the user to pre-set frequencies into the memory. If you set in the higher, actual, and lower frequencies you'll be able to easily change between each frequency by using the "up" and "down" buttons on the keypad and see which frequency gives you the best reception at any one moment. This may sound a little complicated to a newcomer, but once you're done it a few times it really does become second nature.

I should admit at this point that I've not done a great deal of FM operating but for the few times I have the above worked for me.

### SSB/CW Satellites

So now we come to using SSB/CW satellites (birds with linear transponders). There are a good few of these operational at the moment. Here are the names of some. AO-7, FO-29, AO-73, UKUBE-1, XW-2A, XW-2B, XW-2C, XW-2D, XW-2F. The operating principles are exactly the same as for the FM birds except to assist you almost all the above have an identifier beacon that's transmitting virtually all the time, 24/7. The beacon on these satellites is normally a few kHz outside of the main downlink frequencies and although most of the beacons use CW you don't need to be able to read it. Merely hearing the beacon is sufficient. If you can hear the beacon, you can hear the downlink. When listening for a beacon remember to take into account the Doppler effect. One of the ways you'll know the signal is coming from a satellite is because it will slowly drift lower in frequency as you listen. Once you can hear the beacon, tune to the downlink frequencies (also known as the downlink passband) and listen for other amateurs or your own signal if you're transmitting. The difference with SSB satellites is that they can support more than one QSO at a time. That's the positive side. The negative side is that the Doppler shift is far more noticeable with these modes and will require constant, progressive re-tuning as you conduct your QSO. (You can't just switch between a few pre-set frequencies as you can with FM birds.) Allow me to remind you, the signals from the satellite will start high and drift lower throughout the satellite's pass.

Without the ability to monitor your own signal and re-tune it's easy to make problems for other users operating at the same time. If you listen to SSB satellites during times of crowded operations it can be quite amusing. You'll hear some stations drifting into others causing operators to become confused who is talking to them, which is why it's essential to be able to hear your own returning signal when using these types of satellites. Alas there is no convention on how to stop this 'drifting into other signals' problem but the general consensus is that the uplink signal should be continually adjusted to keep the downlink frequency constant (so it doesn't drift). Sounds difficult? Well, it's just another case of practice makes perfect. It is the perfecting of such skills that provides some of the satisfaction from satellite operating, in my humble opinion. You could connect a computer to your rig and let it do the compensating for you, but where's the satisfaction in that?

Just three more things to tell you about, then you can go and do something interesting. Firstly, due to some weird 'technical trickery', for SSB signals to be heard in upper sideband on the

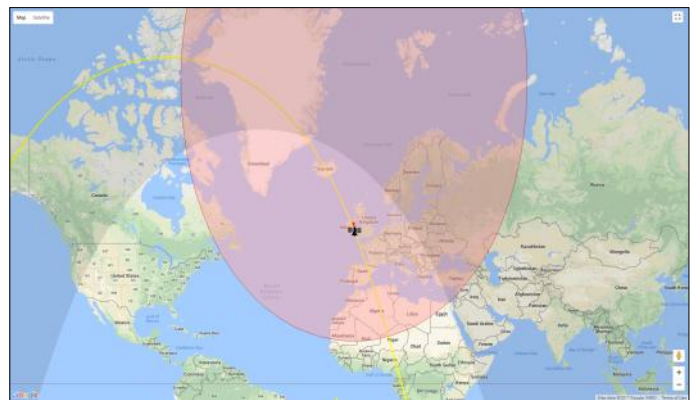
downlink, they must be transmitted in lower sideband on the uplink. Strange but true! Even stranger; to tune your downlink signal to a lower frequency, you may need to increase your uplink frequency (and visa versa) on some satellites. And finally, please don't transmit with more than the *minimum* power necessary to hear your own return signal. Transmitting with too much power will simply activate the satellite's receive attenuator and shut off everyone else's signals, leaving only your signal to be heard. This will make you very unpopular, very quickly! (Don't say you haven't been warned.)

I know all these aspects can sound rather daunting but do remember, nobody gets everything right first time. At the start everyone, and I mean *everyone* goes on a learning curve, especially with SSB satellites. And sometimes everyone makes mistakes too, including yours truly. Trial and error is often the best way of learning and as I said in the previous issue of Echo Ireland, "experimentation is the name of the game." Satellite operating can be challenging, but it's in overcoming that challenge that the enjoyment is derived.

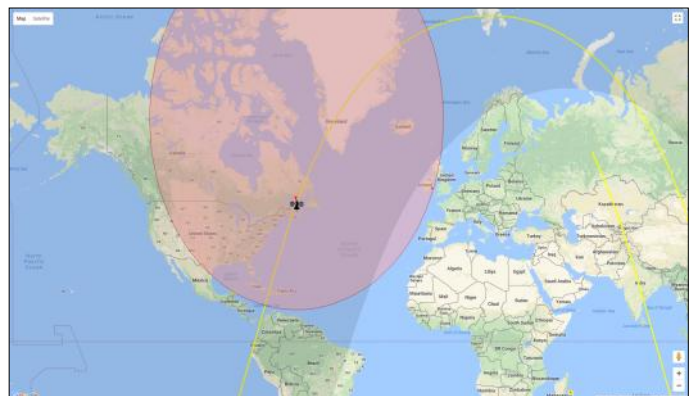
I hope this little 'read' has tempted you to at least try space communication. If not, have another cuppa and read it again!

The accompanying pictures may help explain some aspects but by far the best way to learn how to operate via space craft, is to operate via space craft.

Thank you for staying awake, *See you on the Birds*,  
73 de Keith EI5KJ



*The pink shaded area shows the satellite's Footprint. Anyone who is within the footprint can communicate with anyone else who is also within the footprint.*



*Being on the edge of a footprint gives the best Dx, but also the lowest angle pass.*



# Almost Sixty-Five Years of Radio

**Tony Breathnach EI5EM**

[ei5em@eircom.net](mailto:ei5em@eircom.net)

I was born in January 1950 in Dublin. My parents had a two-roomed flat in Drumcondra. My dad (1910-2003) was a keen shortwave listener and in his youth had built radio receivers in the 1920s and 1930s. It was from him that I got my interest and love of radio. Dad's pride and joy was his American Belmont receiver which covered the shortwave broadcast bands as well as the long and medium wavebands. QSL cards, programme schedules and literature would arrive regularly from all around the world as Dad was a great SWL (shortwave listener).

I was fascinated by the green glow of the "magic eye" tuning indicator on the Belmont. Dad and I would listen together and he would point out on a map the locations of the stations we were listening to. One of my favourite programmes was Dan Dare (Space Pilot of the Future) on Radio Luxembourg. I remember on one occasion dad sending in a request for me to hear Sparky's Magic Piano. I was thrilled when the request was played and my name announced. I was hopelessly hooked on "the wireless" from those early days.

In 1955 we moved to our new house in Artane. My brother Alan and sister Maria had arrived by then. Radio played a big part in our lives especially Radio Éireann, BBC Light, BBC Home and Radio Luxembourg. The Kennedys of Castleross was sponsored by Fry-Cadbury on Radio Éireann and I would rush home from school at lunchtime to listen to the latest episode. Alan and I would also listen to the children's programmes in the evening after school. I loved listening in particular to Michael P O'Connor's children's stories on Radio Éireann.

In the evening the "wireless" was our family entertainment. Take the Floor was a "dancing on the radio" programme hosted by Din Jo. The Foley Family, The Walton Programme the Dalys of Honeydew Farm (Gateaux Cakes) and Dantro The Planet Man (Urney Chocolates) are some programmes on Radio Éireann that also come to mind. Television didn't come to Ireland until 1961 and in any case we didn't get a TV at home until 1963 and then we only had "Teilifís Éireann, Bealach a Seacht."

In the late 1950s and early 1960s my dad was regularly

unemployed and worked several spells in London. There were five of us kids and we missed him so much. We would gather around the radio and listen to Sing Something Simple on the BBC Light Programme every Sunday evening, knowing that dad was listening in London at the same time. During that programme we were reunited across the airwaves for a short time.

In the 1960s the Irish economy began to improve and dad returned home. He got a permanent job and our shared SWLing resumed. On Sunday mornings we would listen together to the radio amateurs chatting on AM and also the Happy Station Show from Hilversum in Holland. Dad would regularly buy Practical Wireless, or Camm's Comic as he called it, and I became fascinated by the many articles, projects and advertisements within.

For Christmas 1963 my Aunt Alice bought me a Philips electronics constructor kit. Along with the components, it included a hardboard base with holes to insert spring terminal connectors for the components. There were printed overlays showing the layouts for the different circuits. The kit included instructions for an electronic organ, radio receivers, audio amplifiers, two-way intercoms, light sensors and many other projects to boot. From that Christmas I was no longer just a passive SWL, but an experimenter and builder as well.

In 1966 my first attempt at a "real" project was a one-valve regenerative receiver called a HAC (Hear All Continents). I saved up and ordered the kit of parts from the UK. I think it cost me 25 shillings (about €1.70) including postage. Ordering it however was not straightforward. There was customs duty to pay and an import licence had to be applied for. However, after several weeks the parcel finally arrived.

That same evening I couldn't wait for the family meal to finish and the kitchen table cleared to start construction under the guidance of my dad. We used plumber's solder and Baker's fluid as flux with a home-made soldering iron heated on the gas cooker ring. The tip was tinned on the bottom of an empty shoe polish tin. All was going well until there was a knock on the hall door. It was our local curate Father Clancy paying a pastoral visit. I was so disappointed when the



*Leo EI6ALB, John EI6EG, A. N. Other, Ray EI7AHB, Willie EI6BUB - on the ferry.*



*Joe EI4FV, Andy EI4DY, Chas EI2EM, George EI7EC  
Leicester Trip 1983 - on the ferry.*





*NDR EI1000 Phoenix Park - Dublin Millennium*

construction had to be put aside for the evening while the priest chatted, drank tea and led the Rosary.

However, a few evenings later the kit was duly completed. Dad connected up the Ever Ready Winner HT (120V) and the 3V valve heater batteries. The Tungsum LD210 valve began to glow and thankfully there was no smoke. Dad connected a short length of wire as an antenna, plugged in one of the green Denco coils and put on the headphones. He adjusted the reaction and tuning knobs and smiled, removed the headphones he handed them to me. Even before putting them on I could clearly hear music. Our joint project was a big inspirational success!

That weekend, dad strung a wire antenna down the back garden and connected a ground wire to the chassis and the copper water piping. With these connected the simple receiver became much more sensitive. Following in dad's footsteps, I began to send in reception reports of my own and receive SWL cards from foreign shortwave broadcast stations.

I then got the idea to hook up an audio amplifier, made from the Philips kit, which allowed me to listen to the HAC without having to wear the uncomfortable headphones. The HT Winner batteries were expensive but as my Aunt Alice worked for Ever Ready in Portobello, she always made sure that there was an adequate supply of discarded "damaged" batteries put aside for me.

For several years I honed my construction skills and grew in confidence by building several transistor receivers and other electronic kits. I started working in 1968 and I bought a National Panasonic shortwave transistor receiver followed by a Yaesu Musen FRG 7 from Taheny's in Sligo. This could resolve single sideband signals and I became interested in listening to radio amateurs.

In the mid 1970s the CB radio craze took off in a big way and my FRG7 was picking up local and foreign CB transmissions. I just had to get in on the act. My sister went on holidays to California and I asked her to bring me back a CB radio. She brought back not one but two Sears Roadtalker 2 SSB transceivers and I joined the other "Good Buddies" on 27 MHz.

I installed one set at home and the second in the car. My handle was Sea Knight and I also had the "international call-sign" 29WW131. The prefix 29 was the CB equivalent to the EI amateur prefix. Propagation was great and I worked so much DX both mobile and from home. CB was illegal in

Ireland but this only added to the thrill of it. The 27 Club was formed at a meeting in Leopardstown. I cringe now when I think of American trucker language we used on air. However, many CB operators from that era progressed to become good radio amateurs. Loch Ness, Big Ben, the Silicon Chip, Clay Bird, The Golden Bullet, King Bee, Queen Bee, Steam Whistle, Mother Nature, The Skipper and K9 are just a few CB handles that spring to mind.

I traded in my FRG7 and bought a Yaesu FT101ZD transceiver. I changed the crystals to convert the 28MHz band to 27MHz yielding about 50 W on CB into a rotatable three-element yagi antenna. I made many local and international friends through CB and even visited some in the USA.

However, the solar cycle was on a downward slope and 27MHz openings declined as the 1970s drew to a close. I decided that it was time to study for the amateur radio licence and in 1979 I enrolled in a course in Fingal Radio Club. Classes were held in Beneavin College in Glasnevin. Our three tutors were Sean Linehan EI7CV, Dick Wilson EI9CC and Seán Nolan EI7CD. In 1980 I passed the theory examination and was issued with the B call-sign EI6AEB. The B licence had only been introduced a short time before and limited licensees to operate on VHF and UHF but not HF.

However, for the time being I was happy and proceeded to build up a nice station. My first transceiver was a Yaesu FT207R FM 2m handheld. The Dublin VHF repeater (EI1DK) had recently been put into service and I made many friends on air. I worked as a field service technician and mobile operation took the boredom out of driving. I installed a 10W amplifier in the car to boost the 1W output from the FT207R.

I bought a Liner 2 SSB transceiver from Harry Dumbleton (EI4S) and with a 10 XY rotatable beam antenna worked lots of DX on SSB from home. I subsequently sold the Liner 2 and bought a Microwaves Modules transverter for 2m, driving it with my FT101ZD. This was followed by the purchase of a Yaesu FT290R QRP all-modes 2m rig and a 100W linear. I worked some great DX on tropo and aurora with that setup.

At the same time I was studying for the Morse Code test at the Fingal Radio Club. Jimmy Upton EI8Z was our tutor. Somebody in the class owned a Datong Morse Tutor and every Monday evening we brought in our tape recorders to record practice lessons in a separate room while Jimmy put us through our paces. I was successful in the Morse test and was issued with the call-sign EI5EM in September 1981.



*Charlie EI2EM*



*Tony EI5EM - Lugnaquilla Walk 1983*

From operating on VHF, I would chat regularly with members of the North Dublin Radio Club and soon joined that club. I have been a member of NDR ever since. Back in the 1980s the club was very active. It had a huge membership. Many field days, special events and trips to the UK and USA were organised by the club. We had to reluctantly turn people away from theory classes as they were over-subscribed. Those were the heady days but sadly the weekly attendance has now dwindled to single figures.

Back in the 1980s, new A call-sign holders were subject to restrictions for their first year. HF was only permitted on the 40 and 20m bands with a maximum power of 25 Watts and CW only. Full privileges were granted after the first year had expired. Many new licensees were not interested in Morse and just sat out the year. I have to admit that at first I had no interest in Morse either, seeing it as a necessary evil and hurdle that had to be surmounted. However, as I already had the FT101ZD and a wire antenna, I decided to give it a go.

Charlie EI2EM got his licence at the same time and we used work in tandem on HF helping each other out with talkback over the telephone or VHF. To my surprise I soon found that I was growing to love Morse Code and I never looked back. To this day HF for me is CW.

About 1983 I bought a Sharp MZ80K home computer based on the Zilog Z80 processor. It had 48K of internal memory and once the BASIC operating system was loaded from tape, only 32K remained available for use. I dabbled with RTTY for a while building my own interface and modem for the computer. I am not a fast typist and spent most of my time just copying transmissions but I soon lost interest in RTTY. Building the interface and modem and getting them to work was the achievement. Shortly thereafter packet radio became the big thing. I gave it a try but I was never taken with it.

The Irish Radio Transmitters Society presents annual awards for construction projects and in 1991 I entered a 30A 12V power supply and won the Kevin Freaney Shield. In 1998 I won the Folan Shield for the first time. Down the years I have entered projects for these awards on a regular basis including several HF transceiver and test equipment projects. It is sad to see the construction end of the hobby in decline. Some of my entries for IRTS construction awards have won by default as they were the sole entries which is disappointing.

The first transceiver I built from scratch was a direct

conversion QRP CW rig for the 7 MHz band. I have also built many commercial kits including the Elecraft K1, KX1 and my main HF transceiver the K2/100 transceiver and its matching KAT100 automatic antenna tuner.

However, my pride and joy is a QRP 7 MHz CW superhet transceiver which I called the Bosca 40. I spent about two years designing, building, testing, modifying and perfecting it. It cost me much more than my Elecraft K2 but money couldn't compensate for the enjoyment, experience and knowledge I gained while building it. The project included an ATU, SWR meter, Curtis memory keyer, DSP unit and digital frequency display. The output is 5W. I wrote technical articles on the Bosca 40 for Practical Wireless and the American QRP ARCI journal.

Technical writing is also an interest that I have developed and I have written many articles for PW, Echo Ireland and other journals over the years. When I was younger I found that many technical authors seemed to set out purposely to confuse readers and demonstrate how much they themselves knew rather than imparting knowledge to others. I bear this in mind when writing and I try to use plain, simple and informal language as much as possible while still including necessary technical information.

In early 2003, Joe Dillon EI4FV approached me to assist with the setting up a special event station in the Martello Tower in Howth. One hundred years earlier the famous American



*Two Liams - (EI9BLB and EI8HY) EI1000  
Dublin Millennium 1988 Phoenix Park*



*EI1000 in 1988: Val EI9GZ, Tony EI3HA  
Dublin Millennium*





*AREN Donabate: Joe EI4FV, Tony EI5EM, Brendan EI7HM, Christy EI4JS*

wireless pioneer Lee de Forest had set up a wireless telegraphy station in the tower and a similar one in Holyhead in North Wales. He had hoped to win the British Post Office wireless telegraphy contract by demonstrating his system to BPO engineers with two-way transmissions between Howth and Holyhead. Joe wanted to commemorate the centenary of this historic event.

The Martello Tower had only recently been renovated and opened as a radio museum (Ye Olde Hurdy Gurdy Museum of Vintage Radio). It was a great honour and privilege to operate the special call-sign EI2LDF with Joe to commemorate the centenary of Lee de Forest's wireless activities in 1903 from the same location.

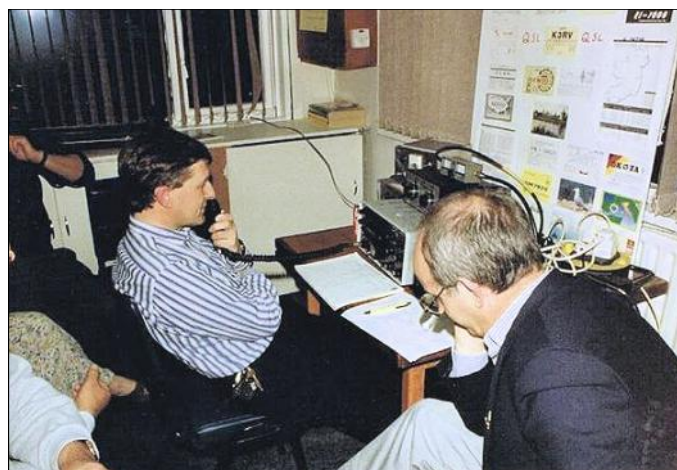
Unfortunately for the American, Guglielmo Marconi was well connected politically, socially and financially in London and it was he who won the BPO contract, even though his system was inferior to de Forest's in many respects, including speed of transmission and reception methods.

In 1905 the Marconi Company set up an experimental receiving station in the same tower whilst the vessel Monarch sailed to various locations in the Irish Sea transmitting back to Howth, where signal reports and technical details were logged.

Subsequently, Pat Herbert, the owner of the exhibition in the museum, gave us permission to set up a permanent amateur station in the tower and the Howth Martello Radio Group was formed and issued with the call-sign EIOMAR the same year. Since I retired from work in 2015, operating EIOMAR plays a big part in my life.

QRP (low power) has, down the years, been a great interest of mine. I joined the G-QRP Club in the early 1980s (Membership No. 3347). In 2016 I bought a small YouKits HB-1B QRP CW four-band transceiver with an eye to operating portable. I built myself a GO-BOX for the rig which includes a rechargeable battery, homebrewed SWR meter, ATU, memory keyer, touch paddle and a 5-metre long vertical antenna. I have operated successfully from many locations around Dublin during the past year generating lots of interest from members of the public.

On the QRP theme, I have recently constructed two QRP Labs QCX CW transceivers for 40 and 20m and at time of



*NDR meeting in the Irish Wheelchair Association, Clontarf, with Joe EI5DYB on the mic and Jim EI4GZ*

writing I am awaiting the arrival of a uBITX all-band SSB/ CW transceiver kit from India. In the past few years technology has improved and prices have dropped drastically for such kits.

I also set up the EI QRP and Homebrew Group on Facebook. I have uploaded video clips of some of my projects on YouTube. Just search under EI5EM if you are interested. I hope that the formation of this group will encourage more entries for the annual IRTS construction awards.

It's now over 60 years since my first interest in radio was sparked by my late father and I have never lost the sense of wonderment, joy and satisfaction that I get from this great hobby of ours. The excitement of hearing my callsign being repeated in CW in response to my CQ call has never diminished and still has that same magic today as it had in 1981.

I plan to continue building, experimenting and operating for as long as I am able to and as long as God spares me. My eyesight is not as good and my hands are not as steady as they once were but I get by. After the uBitx, my next project will be a Cobweb-type antenna for 14-28 MHz. There is always some project or other just beyond the horizon!

So for now BEST 73 and 72 (QRP) *de* Tony EI5EM.



*A.N.Other, Joe EI4FV, Dermot EI4ESB*

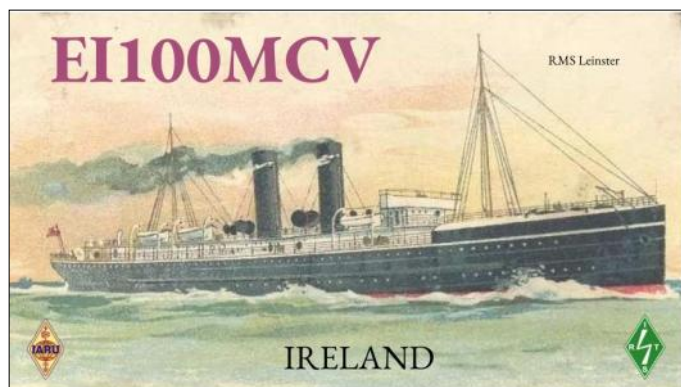


## EI100MCV – OPERATORS REQUIRED

EI100MCV is the call sign issued by ComReg to the National Maritime Museum Radio Club in Dunlaoghaire for the year 2018. This call sign which includes the letters of the original call sign 'MCV' of the RMS Leinster is to commemorate the Centenary of the sinking of the RMS Leinster in the Irish Sea on 10 October 1918 just a month before the end of World War 1.

The call sign may be used throughout the year 2018 by all members of the National Maritime Museum Radio Club as well as by any licensed EI amateur radio operator who would like to commemorate this historic centenary. The Club encourages other operators to get involved on a similar basis to the Wild Atlantic Way initiative. The event will be coordinated by Dave O'Connor EI6AL who has acted in this capacity for many similar events.

Operators who wish to use the call sign should contact Dave at [dave.dot/ei6al/at/gmail.com](mailto:dave.dot/ei6al/at/gmail.com) Anyone who operates the call sign must forward an ADIF log by email to Dave EI6AL.



Dave will maintain a master log and will do the necessary upload to Clublog.

The sinking of the Leinster by a torpedo was, and still is, the single largest loss of life in the Irish Sea with a total of 567 lives lost. The Maritime Museum Radio Club hopes that many operators will avail of the opportunity to use this unique call sign and so give extensive coverage to this important centenary year.

## Radio Amateur Wedding in Cork

On 7th August 2017 John Lyons EI2FEB, Carrigtohill, Co. Cork was married to Gemma Tierney, also of Carrigtohill. The ceremony and reception were held in Barnabrow Country House, Co. Cork.

*Photo: Back row from left: Ken McDermott, Denise McDermott EI3DZB, Charlie Lyons EI2EM, Gemma Tierney, John Lyons EI2FEB, Mary Lyons EI2FT, Florence Lyons and Dave Lyons.  
Front row from left: Julie Lyons, Killian McDermott, Miller Lyons and Paul Lyons.*





# Wild Atlantic Way Report

## Simon Kenny EI7ALB

Thanks to WAW QSL Manager Dave EI6AL the results of the year long (2017) WAW initiative are complete. Since the WAW initiative came from members of Limerick Radio Club, the Club has taken the decision to absent Club members from the Top Operator Award and the Club from the Top Club award.

**In no particular order** the three Top Operators are:  
Gerard Scannel, Jim Barry, Seamus Campbell.

**Again in no particular order** the three Top Clubs are:  
Donegal, Kerry, Cork.

The order of merit for each award, indicating the number of QSOs, will be announced at the IRTS AGM in Galway on the 14 & 15th April. Each of the WAW participating counties will receive a framed certificate indicating the number of QSOs achieved.

The grand total of all QSOs stands at 158,499. Given the band conditions throughout the year, it is a great achievement and something that all participants, in whatever role, can be justifiably proud of.

Some more statistics from Dave EI6AL indicate that EI66WAW worked 195 DXCC entities followed by EI99WAW with 155 and EI11WAW with 126. Currently 35,000 QSO cards have been sent along with 783 certificates for working all 9 call-signs.

While WAW co-ordinators and operators have completed their roles, the QSL manager is likely to be busy for some time to come.

The original idea of promoting Amateur Radio through the Wild Atlantic Way proved to be a very interesting project that started from a proposal by Alan EI8EM to activate the Cliffs of Moher, one of the Signature Discovery points on the WAW. A visit to the Cliffs in April 2015 showed that activation would prove to be very difficult, so over a couple of cups of coffee Alan EI8EM and Simon EI7ALB hatched the idea of promoting Amateur Radio through activating all

nine Wild Atlantic Way counties with special call signs and individual QSL cards for each county.

Support for the initiative was sought and given by the IRTS at the 2016 IRTS AGM in Limerick. Dave EI6AL IRTS Hon Treasurer joined Alan and Simon in putting a structure together on how the initiative would operate. A call to all clubs in EI to participate resulted in Carndonagh Radio Club co-ordinating EI11WAW. Shannon Basin co-ordinated EI22WAW and EI33WAW. Mayo Radio Experimenters Networks co-ordinated EI44WAW and Galway Radio Experimenters Club co-ordinated EI55WAW. Limerick Radio Club co-ordinated EI66WAW and EI77WAW. Kerry Amateur Radio Group co-ordinated EI88WAW and Cork Radio Club took on EI99WAW.

A competitive aspect was introduced whereby awards would be made to the top three clubs and the top three individual operators. Certificates showing the number of QSOs would be awarded to each of the participating clubs.

Some of the clubs were well resourced through membership/equipment; however, the participating clubs could request or accept offers of help from any licensed operator in airing a particular WAW call-sign.

Participating clubs were asked to provide funding for the purchase of WAW QSL cards with the incentive that having reached a quota, a refund would be made. Flushed with initial success the IRTS decided that all monies accruing from the WAW initiative would be used to refund the participating clubs in full. The income would also be used to purchase awards and certificates.

While Clare Tourism funded LRC for the purchase of 10,000 QSL cards for EI66WAW, other WAW clubs were not so fortunate. Through the efforts of Alan EI8EM, Pat EI9HX and Simon EI7ALB the WAW office in Galway eventually provided €1000.

An interesting outcome from the year long WAW activity was the synergy brought about by clubs helping WAW clubs and individuals helping WAW clubs to boost their QSOs, to co-ordinators ensuring smooth operating practices and finally efficient and timely QSL management.



# Irish Radio Transmitters Society

## Treasurer's report for the year to 31st December 2017 for presentation to the Annual General Meeting Galway Bay Hotel, Salthill, Galway - Sunday 15th April 2018

I have pleasure in presenting the Accounts for the year 2017 to members of the Society prior to their being submitted for approval at the AGM in April 2018.

The Income and Expenditure account shows a surplus of €1,940 at year-end. This figure is slightly lower than the figure for 2016.

The Subscription total for the year is higher compared with 2016. While membership numbers remain almost static, the increase is partially due to a number of members who voluntarily opted to move from concessionary to full subscription, a gesture that was appreciated and may be a reflection of the improvement in the general economy. There was also further movement from postal to electronic payment, which reflected in an increase in subscriptions paid in December.

Postage costs show an increase for the year, following a substantial rise in postal costs by An Post in 2017. There was also a significant cost in the postage of direct QSL cards resulting from the WAW project, most of which was recovered from income derived from direct QSL request payments. Income from these requests was also used to fully reimburse the costs incurred by the Clubs involved in producing and printing WAW QSL cards and certificates. A balance of €465 has been retained in the QSL fund for use by Limerick Radio Club in funding trophies and certificates on the completion of the WAW project and any surplus will be used at the discretion of the LRC and the Clubs involved in the WAW project.

The Promoting Amateur Radio fund remains untouched during the year at €4662. I would once again appeal to Members and Clubs to consider ways in which Amateur Radio can be brought to a wider audience with the object of gaining new members to the hobby and potentially to the Society. Any ideas can be put to any committee members for consideration by the PAR sub committee.

The Donations fund now stands at €4,649. There were two projects approved for funding during the year, €1,000 towards the cost of the Expedition to Nepal and €1,000 towards the costs of the ARISS project. Both of these donations resulted in significant exposure of the IRTS in the Media and abroad.

The savings account held by the Society with PTSB was closed in November of the financial year. Funds held in the account were then lodged to the Current Account held by the Society with AIB. This was in part due to new processes introduced by PTSB for continuing access by authorised officers of the Society and in part due to a rational move in having a Society savings account within the same bank as the Current account, both with online availability. A new savings account will be opened with AIB early in 2018 and funds will then be transferred from the current AC.

In summary, the Society remains in a healthy financial position going in to 2018.

Thanks again to our auditors Robert O'Connell EI5CK and Brendan Lynch EI6GA who did a thorough job in checking the accounts prior to signing them off.

Dave O'Connor EI6AL, Hon. Treasurer

## Balance Sheet as at 31<sup>st</sup> December 2017

	2016	2017
<b>Fixed Assets</b>		
Equipment	0	0
Prize Bonds	89	89
Irish Life & Permanent Shares	0	0
<b>Current Assets</b>		
Stock for Re-sale	300	450
Cash on Deposit	47,129	0
Cash in Bank	18,736	65,694
<b>Total Assets</b>	<b>66,255</b>	<b>66,233</b>
<b>Total Liabilities</b>	<b>0</b>	<b>0</b>
<b>Surplus Assets over Liabilities</b>	<b>66,880</b>	<b>66,233</b>
<b>Represented by</b>		
General Reserve	51,653	53,743
Call Book Reserve	1,214	2,214
IARU Conference Reserve	2,077	965
Promoting Amateur Radio Fund	4,662	4,662
Donations Fund	6,649	4,649
	<b>66,255</b>	<b>66,233</b>

Signed: Dave O'Connor EI6AL, Hon. Treasurer



# Irish Radio Transmitters Society

## Income and Expenditure Account for the Year to 31<sup>st</sup> December 2017

	2016	2017
<b>INCOME €</b>		
Subscriptions	22615	23815
Donations	536	80
PAR Fund	0	0
Advertising	0	0
Book and CD Sales	-185	45
Interest & Currency Gain/ Loss	175	107
Exam fee and Morse Tests	1850	1450
Special Call QSL	83	465
AREN	221	188
Other Income	0	0
<b>TOTAL INCOME</b>	<b>25294</b>	<b>26151</b>
<b>EXPENDITURE €</b>		
Echo Ireland Printing	6409	6409
Echo Ireland Postage	4901	5408
Callbook (accrual)	1000	1000
Postage	696	786
QSL Outgoing	600	600
QSL Incoming	1115	1331
Paypal Commissions	647	977
Insurance	706	808
Committee Meetings Room Hire	922	836
Stationary	258	470
AGM Costs	978	806
IARU Dues	1043	1043
Licence Fees	370	30
IARU Convention Reserve	-1263	1000
Bank Charges	450	376
Trophies Etc	624	365
Website Costs	534	216
Donations	0	61
AREN	689	575
Comreg	327	208
PAR Fund	0	0
Exceptional Items	1663	603
YOTA	0	0
Miscellaneous	402	303
<b>TOTAL EXPENDITURE</b>	<b>23072</b>	<b>24211</b>
<b>NET INCOME/DEFICIT</b>	<b>2222</b>	<b>1940</b>

# Irish Radio Transmitters Society

## Notes on, and forming part of the Accounts for the year ended 31st December 2017

### Income

Subscriptions and Income received during the year were treated as cash received and credited to the income and expenditure account. No provision was made for subscriptions in arrears. No provision was made for treating subscriptions falling after 31st December as prepayments.

The Society deposit account with PTSB was closed during the year and the funds transferred to the Society AIB current account.

### General Reserve

Balance as at 1st January 2017	€ 51,653
Surplus at 31st December	€ 1,940
Stock purchased during year	€ 150
General Reserve carried forward	<b>€ 53,743</b>

### IARU Conference Reserve

Balance at 1st January 2017	€ 2,077
Attendance various Conference	€ -1,112
Total reserve 31st Dec	<b>€ 965</b>

### Callbook Reserve

Balance at 1st January 2017	€ 1,214
Transferred from general reserve	€ 1,000
Total reserve 31st Dec	<b>€ 2,214</b>

### PAR Fund

Balance on 1st Jan 2017	€ 4,662
Balance on 31st Dec	<b>€ 4,662</b>

### Donations Fund

Balance on 1st Jan 2017	€ 6,649
Donations 2016	€ 2,000
Balance on 31st Dec	<b>€ 4,649</b>

### Cash on Deposit

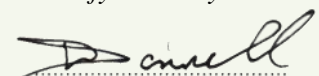
Balance on 1st Jan 2017	€ 47,129
Balance on 31st Dec	<b>€ Nil</b>

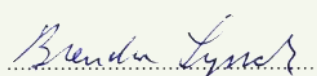
### Balance AREN

Balance on 1st Jan 2017	€ -150
Balance on 31st Dec	<b>€ -537</b>
(this deficit included in general reserve)	

## Auditors Report for year ended December 31<sup>st</sup> 2017

*We, the undersigned, acting as Honorary Auditors of the Irish Radio Transmitters Society, have compared the foregoing Income and Expenditure Account, Balance Sheet and Notes thereon, with the Books and Vouchers of the Society and certify that they are correct and in accordance with them.*

  
Robert O'Donnell EI5CK  
28.01.2018

  
Brendan Lynch EI6GA  
3.02.2018



# Irish Radio Transmitters Society

## Committee Report 2017 for presentation to the Annual General Meeting

Galway Bay Hotel, Salthill, Galway



**Committee Meetings:** There have been eight committee meetings held during the year, alternating between Portlaoise and Athlone with one extra venue in Abbeylax.

**Accounts for 2017:** These are reported in this issue of Echo Ireland.

**Membership Report:** Membership of the Society showed a slight increase at the end of 2017, with a total of 924 members at end of 2016 and a total of 927 at end of December 2017. Whilst it is good to see membership holding up there is another statistic that has shown a negative trend in 2017 - the percentage of licence holders in EI who are members of the Society. At the end of 2016 there were 1730 EI licences and 782 licenced members of IRTS, a total of 45.2%. By the end of 2017 there was almost exactly the same number of EI licencees - 1729. However, the number of EI Licenced members of the IRTS has reduced to 777, a total of 44.9%. Part of the overall income of IRTS goes on both membership of the IARU and in attendance at the IARU General Conference. The Society is usually represented by two committee members at this meeting which takes place once every three years. It is participation in such meetings that safeguards as far as possible the spectrum that all amateurs enjoy and it is an unfortunate fact that this effort is funded by less than 50% of all EI licence holders. Whilst some of the total EI licensees might not be active, it is probable that a significant number are enjoying the benefits of the spectrum they use while contributing nothing towards safeguarding it.

In 2017 the Society was delighted to welcome 9 new SWL members, 9 overseas members and 27 EI/GI members - a total new membership of 45. Dave EI6AL

**Awards Committee Report:** It has been another busy year on the IRTS Contest and activities front. However, the transition in 2016 from Plaques to Certificates for the numerous awards has made the work of the Awards Committee much easier. There is an added benefit to this change in so far as the recipients can opt for a hard or soft copy. This is especially convenient for overseas participants or for members who are unable to attend the Awards Ceremony. They can now receive them via email. There is continued interest in the Worked EI Counties Award with three applications in 2017. There was one application for the 70MHz Half Century MLA Award administered by Dave Court EI3IO. I would like to thank Joe Ryan EI7GY for his meticulous record keeping and his prompt publication of the results. I would also like to thank Awards Curator Larry McGriskin EI9CN who has the unenviable task of retrieving the various Trophies and Plaques and having them polished and engraved before every AGM. Last but not least I would like to thank Dave O'Connor EI6AL for his sterling work as QSL Manager for the Wild Atlantic Way Program. Jim Holohan EI4HH, IRTS Awards Manager.

**Contests Report:** In 2017, the Society ran three Field Day contests and eight Counties Contests. Following a suggestion from a member, we ran a 70cm Counties Contest during the year, which was deemed a success. Separately, the scoring arrangements for HF contests were amended during the year, to provide that overseas DXCC entities as well as EI and GI counties would count as multipliers. This change has been widely welcomed by contesters. Logs from 76 members were submitted for one or more IRTS contests in 2017, along with logs from 29 non-members living outside EI. Joe EI7GY

**EMC Report:** In 2017 The IRTS was represented on EMC matters at the IARU R1 General Conference in Landshut. EMC is now a permanent R1 Committee, C7. The C7 meetings took place over several days and the papers presented are available on the IARU website.

There are considerable concerns around proposed standards for high-power wireless power transfer, designed for charging of electric vehicles. Since the Landshut meeting two draft standards for WPT have been rejected and the proposed standards will need to be improved on before they can be resubmitted for voting.

IRTS takes part in the NSAI TC16 standardisation committee which holds meetings in Dublin twice a year. In 2017 IRTS attended both meetings and made input on several standards to help ensure continued protection of Radio services.

Several of the papers presented at IARU in C7 dealt with the topic of measuring background noise levels and monitoring changes over time. Arising from this it was decided to set up a noise measurement campaign designed to run over many years. The aims are to collect and normalize data to allow measurements to be compared with ITU-R standards for reference as far as is possible.

- Investigate and incorporate where possible data from past noise measurement projects
- Devise methods for manual and automatic measurements by amateurs worldwide
- Develop methods of calibration to allow for reporting station calibration
- Create web and database services to allow for reporting of data and access to results

A working group was set up to run this project. Success will require a wide range of participation across a diverse range of interests. Brendan EI6IZ is chairing the working group and would be most interested in hearing from anyone who might be interested in participating with any aspects of this project. Software developers and mathematicians are required as well as those with an interest in EMC.

The IRTS EMC officer is able to provide advice and assistance to members regarding EMC issues; however EMC enforcement is a matter for ComReg. Brendan Minish EI6IZ

**ComReg:** The Commission for Communications Regulation (ComReg) is the statutory authority responsible for amateur radio licensing. Regular contact is maintained with ComReg by the Society and there is a good working relationship between the Licensing and Frequency Management sections of the Commission.

At the time of writing a meeting is being requested with Comreg. This meeting will cover matters arising from the Radio Spectrum Management Strategy which runs until the end of 2018. An important issue under this is the extension of the 70MHz band to 69.9 to 70.5MHz to conform to the European Common Allocations table. Another matter will be the release of some spectrum in the 30-39MHz and the 54-69.9MHz bands as indicated in the Strategy document. Matters of interest to the amateur service in WRC-19 will also be raised. In the forefront of these is securing alignment between Region 1 of the ITU with Regions 2 and 3 that have 50-54 MHz on a primary basis. Other issues that will be discussed in the context of WRC-19 are protection of amateur frequencies in the 24 and 47GHz bands. EMC issues will be raised arising from the EU Commission's guide to the EMC Directive. Seán Nolan EI7CD

**Amateur Station Licence Exam:** The agreement under which IRTS is responsible for setting, organising and correcting the examination for an Amateur Station Licence was renewed in December 2016 for a further five years. Since the last AGM three examinations were held and 38 candidates sat these examinations. Since IRTS took over responsibility for administering the examination process thirteen years ago, thirty six examinations have been held and 461 candidates (including repeats) have sat these examinations and 297 have qualified for a HAREC qualification. Seán Nolan, EI7CD

**Automatic Station Coordination Group:** Under a long standing arrangement with ComReg, requests for automatic stations are referred through the Society to this group which operates by email and comprises all the repeater/beacon keepers in the country. The Committee wishes to record its thanks to them for their co-operation and to John McCarthy EI8JA who coordinates the work of the group. It is of benefit to the amateur community that there is a system of consultation on applications for automatic stations.

The Committee takes this opportunity to thank the officials in ComReg for their cooperation with the Society during the year. Seán Nolan EI7CD

**Web Site:** Our web site [irts.ie](http://irts.ie) provides information on the society's activities and other amateur radio events. We rely on our members to alert us when material on the site requires updating. A new innovation on the site has been the introduction of a Publications Library, where scanned copies in PDF format of old IRTS publications, principally newsletters, as



far back as 1948 are available. This Library forms an important digital record of past society activities. Many thanks to those members who have already made old newsletters available for scanning; we would encourage others to search for old IRTS publications that are not already on the site and send them to Joe EI7GY for scanning.

**Radio News:** The year saw the retirement of Aidan Noone EI7JC as Radio News Editor. Thanks to Aidan for his great work. Mark Bannon EI6HPB has taken over the position. The Society is still seeking volunteer HF newsreaders. Particular thanks is due to Mark EI6HPB who continues to provide interesting and informative news scripts each week as well as to the HF and VHF newsreaders who give their time to bring us the radio news service throughout the year.

**Publications:** During 2017 four editions of Echo Ireland were published in March, June, September and December. There were 12 issues of the EiNews electronic newsletter published on the first of each month and emailed to more than 700 subscribers. Once again, there was an increase in contributions from clubs and there was an eclectic mix of article from members. Anthony Murphy EI2KC retired as author of HF Happenings column and has been replaced by Mark EI6HPB. Aidan EI7JC has stepped down as Editor and the position is currently vacant. Thanks to Aidan and Anthony for their work. Séamus EI8BP and Steve EI5DD would like to record their thanks to all who contribute and to Paul EI5DI and Dave EI8KG who work in the background on quality control.

**ARISS:** During October there were two direct ARISS (Amateur Radio on the ISS) contacts with schools in Tallaght, Dublin and Glanmire, Cork. The ground station design and build was by Dan Cussen EI9FHB assisted by members of South Dublin Radio Club and Cork Radio Club. To make it more challenging, two schools in Sweden and Romania were relayed via the Irish ground station EI1ISS. Excellent communication was established with ESA astronaut Paolo Nespoli and NASA astronaut Joe Acaba on board the ISS. In all, nearly 2,000 young people were present in the schools for the contacts.

**HF Report:** As IRTS HF Manager and as far as responsibilities as an IARU Executive Committee member would permit, EI3IO attended meetings of the permanent HF Committee at the IARU General Conference in Landshut, September 2017. The HF Committee addresses planning and operational matters relating to the use of spectrum allocated to the amateur service below 30 MHz. The interim 5 MHz Plan for the band 5 351.5 - 5 366.5 kHz agreed by IARU-R1 in Vienna in April 2016 was confirmed with minor amendment.

Please note that the IOTA standings table remains live. Interest appears to have waned in recent months but those interested in publicising their IOTA successes should provide the HF Manager with details of the number of worked IOTA references worked. Columns are also available to input official scores, as well as the number of islands worked in each continent. Whilst on the subject of awards another activity which has waned this year is the comprehensive 70 MHz award programme offered by IRTS. For further details on IOTA standings see [www.irts.ie/totalist](http://www.irts.ie/totalist) or for the 70 MHz awards see [www.irts.ie/70mhz](http://www.irts.ie/70mhz). Alternatively contact the HF Manager, EI3IO.

**IARU Liaison:** The role of IARU liaison is to facilitate the information flow between IRTS and IARU-Region 1. This is obviously easier if one is active inside our umbrella organisation. Between the Albena General Conference in 2014 and the Landshut General Conference in 2017 EI3IO served on the IARU Executive Committee (EC). EI3IO did not stand for EC re-election in 2017 but was elected Chairman of the IARU's Spectrum and Regulatory Liaison Committee (SRLC) which has replaced the IARU's External Relations Committee (ERC). EI3IO therefore remains closely involved with key issues affecting amateur radio at the IARU level.

The 2017 IARU-R1 General Conference reviewed the strategy of IARU Region 1, its finances and membership. It also addressed the planning of and use of our frequency bands, interference to and from the amateur service, competition and contests, encouraging youth as well as other policy and administrative issues.

Other matters reviewed included the work of a number of permanent Committees, Working Groups and coordinators, including EMC, Political Relations, Emergency Communications, Youth, ARDF, Development of Amateur Radio in developing countries, Spectrum development and protection through active participation in ITU World Radiocommunication Conferences and the Region 1 Regional Telecommunications Organizations (ASMG, ATU, CEPT and RCC) as well as Intruder Watch, Space and High-Speed Telegraphy.

Conference also reviewed policy in the key spectrum areas in the frequency range 3 kHz to 300 GHz. Discussions extended over a range of areas, including band planning, contesting, remote working and innovative developments in the areas of satellites and digital TV. This year's key issues include preparations for the 2019 ITU World Radiocommunication Conference, promoting an Entry Level Licence in RTOs, youth empowerment and limiting harmonic radiation from Wireless Power Transmission installations for charging electric vehicles. EI3IO is responsible for IRTS liaison with IARU.

#### **The QSL bureau:**

**QSL Cards:** The QSL cards are distributed by a dedicated team of members on a regular basis. From an initial sort by Michael EI2CL the cards are picked up by Pat EI2HX and brought to the IRTS committee meetings and handed over to the attending QSL managers, those not at the meeting will receive them in the post later that week so they can be sorted out and get to you as quickly as possible. On the subject of postage, with the cost of postage as ever going up, it was noted by the QSL managers that 5 cards could be sent for the same price as a single card. If there are only a couple of cards for you this time the manager will hold onto them and add them to the cards that arrive the next time, if there are none to add then what we have for you will then be sent to you.

**You and your cards:** On the subject of you, do the QSL managers have your details? Some members may have changed their call sign over time, be it from a 3-letter to a 2-letter call sign, have come back to the hobby, (and having to get a new call sign) and if you are in charge of a special event or club call sign, do please let the QSL manager for that call sign's number know who to send it to, as not all QSL cards come back with "Via EI ??" on them. So let us know so that you get YOUR cards. Your QSL manager's details are, as always, on page 2 of the Echo Ireland, so let YOUR current manager and even YOUR previous call sign manager know where to send them, as the other station may take months to send out their cards. It has been noticed by some managers that some QSL cards arrive many years after the QSO, this is not that the QSL card has been lost in the various bureaux, but someone has got a new computer logging programme and he has simply just stuck a sticker on a blank QSL card. You can bring your QSL cards for EI to the rallies and hand them in at the IRTS stand, but all non-EI's must be sent to our outgoing manager, details of which are found on Page 2 of Echo Ireland and on the society's web pages.

The outgoing committee would like to thank all the QSL managers for their service in getting the QSL cards to their final destination.

**AREN:** Firstly, it must be noted in June AREN has lost one of its most stalwart members, contributors and supporters in the form of Tony Allen, EI4DIB. AREN and the hobby has suffered a huge loss, he will be sorely missed.

The Galway VHF Group assisted the Kinvara Rock and Road Marathon on the 4th of March using C4FM. This was the first-all digital operation on an AREN supported event. Future operations locally will be DMR or Yaesu Fusion as a result of this trial as it worked so well.

On 11th March AREN provided communications support and delivered a workshop in Tralee for Kerry Civil Defence who were hosting regional competitions. A portable repeater was used to boost voice communications in a old meat processing factory where stainless steel clad walls provided a challenge for RF. The workshop covered a variety of techniques on overcoming communications challenges including coverage and interoperability.

Galway VHF group were active again in April for the Connemara ultra marathon where HF was used and in again June for the Galway Regatta, where UHF DMR was used.

Also in June AREN members assisted at the Ocean to City race held in Cork Harbour. In July, several 4M Radios were donated to AREN by EI3JE and some 4M Dipoles were donated by Clearwave Communications. EI4JN continues to represent AREN at Inter agency Sub-group meetings held under the auspices of the Inter Agency Emergency Management Office ([www.iaemo.ie](http://www.iaemo.ie)). This included presentations on AREN training events, recent Severe weather exercises, the use of portable repeaters and the beginning of evaluation of DMR technology.

Galway VHF Group was active in July 2017 for the Castlebar 4-day Walking Festival, and again in August for the Galway Walking Club Marathon.

Once again AREN was involved in the Sean Kelly Tour of Waterford.

Interestingly this year, for the first time, the primary communications mechanism was Tetra. Civil Defence, Irish Red Cross and Order of Malta Ambulance Corps all had their own Tetra sets and they were using a single talk-group for communications. Civil Defence also had their own Low-Band VHF operational (as there are some known Tetra Black-spots). Tetra worked quite well, though some minor issues occurred during the day.

APRS worked very well where we had coverage, five MicroTrak All-In-One units were deployed during the day. One large blackspot area has been addressed since last year with a new digipeater outside Youghal. Galway VHF group were active again in October for JOTA. Also in October, we were visited by Ophelia. As many members were home, it was decided to try and keep track of members during the day via local simplex channels, local repeaters, linked repeaters, DMR repeaters/hotspots and internet chat. It was obviously made more difficult due to power cuts during and after the weather event. However it was surprising how resilient the SIRM repeater network was during the event.

At the time of writing the 6th National training and development weekend is imminent at the usual venue of Lough Derg House, Dromineer County Tipperary on 3rd and 4th of February. The agenda this year includes reviewing our strategy document, review of member training up to now and a more in-depth discussion of digital communications systems, DMR in particular and MCP operation. We continue to work on improving our Logistical Digital communications capability through the use of digital modes on HF.

Throughout 2017, approximately 600 hours were directly spent by members on public service activities. This does not include the time spent preparing for events, training or meeting with served agencies. Many thanks to all members for donating their time and expertise to public service. Anyone interested in what AREN does should feel free to contact John Ronan, EI7IG ([ei7ig@aren.ie](mailto:ei7ig@aren.ie)) or via the contact details on the IRTS website.

**International Amateur Radio Monitoring System (IARUMS):** The IARU Monitoring System is the defence organisation of the worldwide ham radio community. Our bands are under ever increasing attack from outsiders using our allocations without authorisation. It is therefore necessary to observe our part of the spectrum, to take note of any illegal intruder and report all events to the different national telecommunication authorities, who might try to sort out the problems. The most common group of intruders audible in Ireland are still fishermen from Spain, Portugal, Ireland and a variety of other countries. The second group of intruders includes radar stations and other military communications from the ever growing conflict hot points like the Middle East, Ukraine, Far East and the Pacific. The third group consists of a number of broadcasting stations still using the 40m band.

Monthly reports with all incidents recorded are sent to the IARU coordinator in Germany. The report is included in a general report which in return is published online on the IARU MS webpage. The Irish section of the IARUMS also takes part in the email alert system for a quick response to a sudden intruder.

Reports about intruders observed by Irish amateurs or SWLs are always welcomed by the MS officer, Michael EI3GYB.

**Digital Radio Development in Ireland:** A number of operators had become interested in digital radio in the form of DMR and D-Star and with the use of hotspots to access the network, were able to establish contacts with operators in other countries. In 2004 a digital voice modem was developed which was widely used on HF but interest waned fairly quickly and digital signals are seldom heard on HF from this device. A number of experiments with this system in 2016 prompted experimentation in Galway between two operators. From that time both Yaesu Fusion and DMR became popular in the area.

A number of operators had applied for DMR registration to enable them to use hotspots which required this number to identify the hotspot. Interest in DMR Radio had been discussed by Ronnie McGrane, EI9ED, with plans to build repeaters but to date none of these have been licensed or gone on air. Undoubtedly as time progresses there will be activity from the Kells area.

Limerick Radio Club were the first to introduce the concept of Digital Radio when they established their 2m repeater in 2014 on Tountinna Mountain, followed by their 70cm Fusion repeater on Woodcock Hill in August 2016. A Fusion repeater was set up in Donegal using the callsign EI2JPG and this went on air around November 2016 according to the YouTube video.

In January 2017, John Anderson MI0AAZ, Dave Randles M0AUT and Steve EI5DD discussed the possibility of obtaining a Brandmeister Network Server for Ireland. Initial approaches were made to one of the Brandmeister Managers in Holland. After a couple of weeks agreement was reached and a location and somebody was sought.

Contact with John Ronan EI7IG, resulted in, not only a location in the Waterford Institute of Technology, but John EI7IG as Sysop with the expertise to look after the system. After talks with the Brandmeister manager in Holland the system was implemented and placed under test in May.

By June everything was fully functional and the Server went on line for public use with three Talk Groups assigned to Ireland. By July there was a bridge set up between the Yaesu Fusion Network and the DMR network with excellent results and good quality audio on both modes

In August, the Southern Ireland Repeater Network set up a multimode Digital Repeater in west Waterford. This immediately promoted interest in the South East offering facilities on D-Star, DMR and System Fusion. To date this is working well despite bad weather that resulted in short down times.

November saw the implementation of Multimode Digital Gateways in both Galway and Mayo. The popular modes of operation seem to be Yaesu Fusion and DMR. At this time the Galway VHF Group and Galway Radio Experimenters Club collected money towards a Yaesu Fusion Repeater with connectivity to the Wires-X network. This system has undergone extensive testing and will be placed on Tonnabrocky in early 2018.

The Galway VHF Group has applied for a license to operate a DMR repeater and are in the process of purchasing a Hytera RD985 repeater subject to the license issuing from ComReg. This should be on air in the early part of 2018. At the same time the Southern Ireland Repeater Network have applied for a multimode digital repeater to be located in Tramore and this should be active early in the new year. Naturally the establishment of digital equipment in the Galway area will result in a growing awareness and interest in digital communications.

Whilst, at present the larger interest in digital radio is mainly confined to the West (Limerick, Clare Galway and Mayo), the South East, and Dundalk, other areas are slowly increasing in numbers. Undoubtedly, the implementation of digital repeaters and gateways around the country will continue to grow an awareness and interest in the hobby.

Information disseminated in Echo Ireland and via lectures at radio clubs should dispel the rumours that setting up a digital system is complex. As it stands there are a number of websites and social media sites offering information, and assistance with code-plugin programming.

December 2016 saw just 32 DMR registrations listed for Ireland and, by the end of December 2017, the number had increased to 105 which was significant progress. The digital network will undoubtedly expand over time and numbers will increase. Digital radio is really only in its infancy in Ireland but does have the benefit of the experience of other countries. Steve Wright EI5DD

#### Committee Nominations for 2018/2019

President	Jim Holohan	EI4HH
Vice-President	Pat O'Connor	EI9HX

#### Committee

Harry O'Loughlin EI2KL  
Steve Wright EI5DD  
Robert Brandon EI5KH  
Dave O'Connor EI6AL  
Brendan Minish EI6IZ  
Anthony Dolan EI6GGB  
Brian Canning EI8IU  
John McCarthy EI8JA  
Louis Ryan EI8KI  
Tom McDermott EI9CJ  
Declan Horan EI9FVB

**Report compiled by John Owen-Jones, Hon Secretary, from IRTS Officers' Annual Reports, February 2018**





# IRTS AGM 2018

**14/15 April 2018**



**Galway Bay Hotel, Salthill, Galway**

*Lectures, Dinner, Rally and AGM*

## **AGM Dinner - 7.30 for 8.00pm, Saturday 14th April**

Tickets for the Dinner on Saturday night 14th April, (7.30 for 8.00pm) cost **€35** each (same as last year!) and are available from Steve **EI5DD** or any IRTS Committee Member.

Payment can be made by cheque or money order.

**You may also RESERVE a ticket to be paid for on the night by sending an Email to Steve EI5DD. Alternatively, tickets may be ORDERED and paid for through the IRTS payments system (tickets will be posted to the buyer). The secure system accepts payment either by Credit Card or by PayPal.**



*Hosted by Galway VHF Group*



**Updated information on [www.irts.ie/agm](http://www.irts.ie/agm)**

**See overleaf for lecture details**

## **AREN National Training & Development Weekend**

### **John Ronan EI7IG**

The weekend of the 3<sup>rd</sup> and 4<sup>th</sup> of February began Friday evening with members arriving from all over the country into Dromineer, Co. Tipperary. Some initial setting up of the Mobile Command Post (MCP) was done before adjourning to a local hostelry for dinner and chat.

Saturday morning began shortly after 10:00 with an initial minutes silence for recent silent keys, followed by a review of 2017, and lessons learned from Storm Ophelia. Conor EI4JN did a review of strategy and progress made since last year. After a discussion on areas to concentrate on for 2018 and vote of members present was used to decide priorities.

After a light lunch, a break from the more formal aspects was needed so everyone headed for some 'outdoor' activities. This began with a refresher on MCP deployment, Winmor/Winlink (<https://www.winlink.org/>) station set-up, fault-finding, and digital communications demonstration over HF. This was then followed by a show-and-tell where everyone demonstrated their own equipment, and exchanged ideas and techniques with other participants. This included transceivers, solar power systems, antenna systems, and battery technologies. Conor EI4JN recently acquired a van with a crew cab and all were quite jealous of his very comfortable

operation environment.

A break was planned into the schedule for dinner and to watch the Ireland v France rugby game. Once finished, we returned to the training room for a DMR Introduction presented by John EI7IG followed by discussion on its uses in AREN, more show and tell, before adjourning to a local hostelry at about 21:00.

Sunday morning began with a review of the MEM Information Managers Handbook (A document which relates to part of the National Framework for Emergency Management process – <http://www.mem.ie>), which gave context to the training and practice to follow in formal message handling. Lastly, members availed of the opportunity to get their training records signed off on new skills and before everything was packed away ready for departure by 13:30.



# *IRTS AGM 2018*

# WORKSHOP TALKS

We hope that one of the reasons you are going to Galway is to attend one or all of our workshops. The workshop talks will take place on Saturday the 14th April 2018 starting at 2pm at the Galway Bay Hotel, Salthill. Admissions to all talks is free.

## *“DMR” from Steve Wright EI5DD and John Ronan EI7IG*



The lecture will cover DMR radio from the basics, the advantages, and basic programming of the DMR radio. This lecture is geared toward dispelling the myth that this mode of communication is complex and difficult to set up.

John was first licensed in 1992, and after some time learning the ropes and under the (very) patient tutelage of Mick McLoughlin, passed the Morse Code exam in December 1994, and has been licensed as EI7IG since January 1995. John was active in packet radio and digital HF modes during the late 90's and early 2000's. This led to an interest in AREN which continues to be a major interest. After being introduced to DMR in early 2017 by John, EI8JA, and Neil, EI3JE, he has been on a steep learning curve and is excited at how the protocol is developing in our hobby.



## *"The 7Q7EI Dxpediton" from Pat O'Connor EI9HX and Enda Broderick EI2II*



Pat EI9HX and Enda EI2II will have just returned from the EIDX Group DXpedition to Malawi. The EIDX Group was formed in early 2016 with the aim of forming an all-EI DXpedition team and to promote DX activity in EI, and has over 30 members consisting of Ireland's most prominent DXers and contesters. Pat EI9HX was first licensed in 1984 and one of his major interests is contesting, being currently the holder of the CQWW SSB all-time world record on 80m. Pat was co-leader of both the 7N7EI and the 7Q7EI DXpeditions. Enda EI2II has been licensed since 1995. An experienced contester and IOTA operator who spends time on the HF bands using SSB & digimodes, Enda also works in the telecommunications industry, dealing with microwave networks and fibre technology. 7Q7EI will be Enda's second DXpedition as he was also a team member of 9N7EI. A Galway native & supporter (of the stick game). Enda runs a modest station outside Loughrea.



## *“Having FUN in Space” from Graham Shirville G3VSV*



Graham has been interested in “radio” since a very young age. Having taken the RAE on his 14th birthday he obtained a 70cm-only licence G6AEV/T. The intervening years have mainly taken him into VHF and ATV and into space with the developments of CubeSats such as the FUNcube programme for AMSAT-UK. These two areas of special interest happily joined together with the development of the DATV system on the International Space Station.

“Having FUN in Space” will discuss the recent massive growth in the number of amateur radio transponders in space which has largely been brought about by the CubeSat revolution. Additionally, the opportunity for using amateur radio for educational outreach has greatly increased. Graham will also touch on the many upcoming launches and developments including the Es'hail-2 Geostationary spacecraft.

## *“FT8 - The weak signal mode” from Keith Wallace EI5KO*



Keith was first licensed in June 2016 –and got his Class 1 in March 2017. He is a member of IRTS and South Dublin Radio Club. His professional background is in electrical instrumentation and automation. Keith can be found most days on the bands operating digital modes, especially FT8.

ARRL describes FT8 as the latest bright shiny object in the amateur radio digital world. It is an excellent mode for HF DXing and for situations like multi-hop Es on 6m, where deep QSB may make fast and reliable completion of QSOs desirable, according to Nobel prizewinner Joe Taylor's release notes.

Keith's presentation is an overview of how to setup and get going, and will cover equipment, software, general operating and DXing.



# SOTA Experiences

## Albert White EI6KO



The gurgling of streams in the bog and the eerie calls of birds through the thick fog gave a spooky feeling to my walk up Kippure. There is a road all the way up, built in 1959 when Kippure was a main transmitter site for Radio Éireann, so no need for my map, compass and survival gear today. Activating the 757m summit is worth 10 Summit on the Air points (plus 3 bonus points for wintertime!). This will take me to 91 activation points in total – only 909 points left to get the Mountain Goat Award! Before long the fog clears and I find that I've crept up on a herd of about fifteen deer. About a half hour later I'm setting up my HF station at the summit.

When you have to hike up a mountain you try and minimise the weight of your setup. My antenna is a SOTAbears linked dipole for 20, 30 & 40m (weighing 600g), with the centre supported on a 7m telescopic fibreglass pole (880g). The radio is an FT817ND, a light radio at 1.1Kg, and does HF, 6, 2m & 70cm; though only with 5W. The power can be a limitation; being on a cold mountaintop trying to get your fourth QRP QSO (you need 4 for it to be a valid activation) can be frustrating. To give myself a little more power I bring a small HF amplifier (700g) that gets my signal up to about 30W. To power all this I have a 4200mAh LiFePo4 battery (527g). These require a special charger but are much lighter than lead-acid batteries, and less likely to explode than LiPos! The whole day's activation took 1700mAh, and the total weight of the radio gear is under 5kg.

40m seems busy. It usually does on a mountaintop where the noise level is low. I stumble across DK8EQ finishing a QSO with a UK station, so I respond to his next CQ. Ulrich is in a quiet countryside QTH about 30km East of Düsseldorf and gives me a 58 report and as he's going QRT leaves me with the frequency. Unfortunately no-one responds to my CQs. Thankfully SOTA has its own spotter website, so I self-spot with my phone and a couple of minutes later I'm working a small pileup. The 'chasers' as they are called can attain a 'Shack Sloth' award for getting 1000 chaser points, so they will make the effort to eek my signal out. Some stations I exchange 59 reports with. I manage to eek out a QSO with G0VWP who gave me a 3-3, but I really struggled and could only give him a 1-1. The SOTA chasers are a good bunch and all stand by as I'm trying to work the weak stations. After about half an hour I've 20 stations in the log.

It's 1.30pm by the time I get back to the car and get a well-deserved cup of tea. I'm now at 91 points, so a 6 point summit with a winter bonus will get me to 100. The Great Sugar Loaf is on my way home and at 501m it just qualifies for the bonus, so I head off towards the coast.

The Sugar Loaf car park has a half-dozen cars. Even on a January Friday afternoon there are walkers here. The route to the summit gets steeper near the top and at the very end you need to climb up to the peak. At the top I unpack my Arrow antenna. It's a 2m/70cm yagi with elements made from aluminium arrow shafts designed for handheld satellite work, so it's light and fits easily in my backpack. I usually get more responses to my calls from Wales than I do from Ireland so I make a call with the FT817 with 5W on the 2m FM calling frequency and Don (GW0POP) gets back to me, Don is a regular chaser and I'd spoken to him earlier from Kippure. Next were another couple of regulars from Co. Wexford, Michael EI9GGB and Jim EI9GLB. But my fourth QSO was eluding me. I put out a call on the Kippure repeater; repeater contacts don't count for SOTA but it's fine to use them to arrange a simplex QSO. Gerard EI8HYB got back to me and by taking his handheld out into his garden I was able to make the fourth simplex QSO to activate the summit and get my 100 activator points.

Irish summits can be busy in good weather so expect visitors to your SOTA station! Operating in public is a great way to promote the hobby, and to help explain a bit about SOTA and Amateur radio I have produced a leaflet that you can download from the IRTS website and hand out to the curious.

The leaflet is available on the downloads page in the operating section [irts.ie/downloads](http://irts.ie/downloads)





## The Upper Spectrum

Joe Ryan EI7GY

joe.ei7gy@gmail.com

We have two issues of a newsletter called “The Upper Spectrum”, provided by Aengus Cullinan EI4ABB, who acquired them some years ago. The Upper Spectrum was published by the VHF Research Society of Ireland, which was established in 1952 as an all-island group, with separate EI and GI councils. The principal driver, and its first president, was Harry Wilson EI2W, one of the pioneers of VHF operation in Ireland and, at the time, the holder of the European two metre distance record (655 miles, in a QSO with DL3VJ). Harry Wilson was also heavily involved in IRTS, serving as its president in the period 1961-1963.

In 1953, following an influx of members into the VHF Research Society of Ireland from other European countries and North America, it was decided to change the name of the group to **The International VHF Society**, which continued in existence for a number of years, at least. There are references to the society in the years up to 1955, with Phil Thorogood G4KD as president and Basil King EI5Y as vice-president.

The inaugural meeting of the VHF Research Society of Ireland took place in Clonmel in August 1952, attended by 32 members from all parts of Ireland, and there were meetings later in the year in The Curragh and Belfast. The object of the society was to “... *awaken and stimulate interest in VHF working in Ireland* ...”. The focus in the two newsletters from 1952/53 was on two metres, which had been assigned to radio experimenters just a few years previously.

Both newsletters include transmitter circuits as well as receiver, preamplifier and converter circuits for two metres, all using valves that would have been commonly available for HF. Clearly no commercial equipment for two metres was available to the amateur market at the time, so home construction was the only way of getting on the air. Transmitters were crystal-controlled – typically the fundamental crystal frequency was approximately 8 MHz, multiplied over a number of stages to the 144 MHz band. Transmitters operated on one fixed frequency only, so

experimenters tended to publicise their chosen frequency (e.g. “Frequency of EI6A is 144.309”, “EI9C operates on 145.89”). How easy we have it nowadays, with black boxes and digital readouts!

The Summer 1953 issue included an article on ATV (Amateur Television), with a report that the first two-way TV contact on 70cm in the UK had taken place in May 1952. The article suggested how a TV camera might be constructed, along with the basis on which appropriate signals for transmission could be generated.

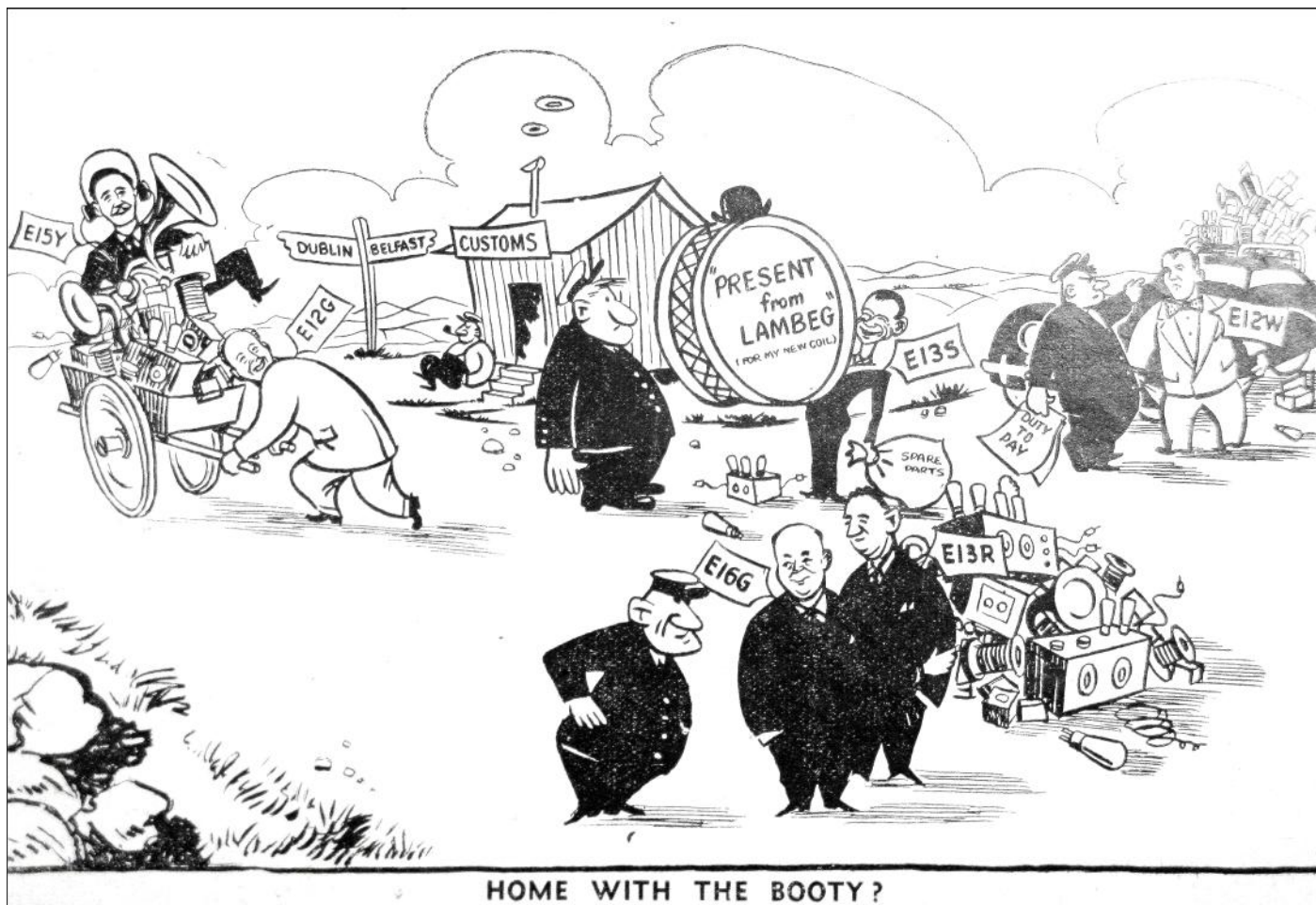
There was also an interesting article on the impact of weather on VHF propagation. While I knew that weather can influence VHF propagation, some of the weather portents referred to in the article were new to me – such as the fact that a pale blue sky is a good omen, for it is more than likely to indicate the presence of temperature inversion and consequently greater refraction.

Radio experimenters in the 1950s were keen to take on the challenge of spanning the Atlantic on two metres; it was announced that transatlantic 2m tests involving teams in Ireland and in the USA would attempt two-way communications during July-August 1953. Writing in the Summer 1953 issue of The Upper Spectrum, Harry Wilson recalled that the Atlantic had been spanned by radio amateurs on the shortwave bands for the first time in 1921, but that the planned two metre attempt “... *is much more difficult than that of 1921, as we are dealing with very high frequencies. However, we will tackle this assignment full of hope and in the knowledge that the impossible only takes a little longer to accomplish*”. The teams planning the 1953 attempt were not to know that, more than 60 years later, the feat they were attempting [using just atmospheric propagation] would still not be accomplished.

This cartoon appeared in the December 1952 issue of The Upper Spectrum. Given that the scene depicted has once again become very topical, we have taken the liberty of reproducing it (page 25).







**More Pictures from the Coolmine Rally - thanks Joe EI2JZ**

*Above: Home with the booty - 2018! Bernard Mothersill; Tony Fay EI6EQB  
Left: Something for everyone.*

# Amateur Station Licence Examination Report – 2018

## IRTS Licence Examination Board

The Amateur Station Licence exam is in two sections with 30 multiple-choice questions each:

### Section A - Amateur Radio Regulations and Related Topics

### Section B - Amateur Radio Theory and Related Topics

The pass mark is 60% and a pass is required in both sections. Those who pass receive a **Harmonised Amateur Radio Examination Certificate (HAREC)** which is recognised in nearly all European countries and many others including Australia, Japan, New Zealand and South Africa.

Seven exam sessions were held in the two years 2016/2017, involving 76 candidates; 51 were successful, of whom 46 were sitting the exam for the first time. Many of the successful candidates achieve very high marks indeed and have clearly prepared very well for the exam; 40% of the successful candidates achieved overall marks of 80% or more.

### Amateur Radio is just a hobby ... what's the problem?

Before looking at the areas that have caused problems for candidates it is worth reflecting on why getting an Amateur Station Licence entails sitting and passing an exam. Yes, amateur radio is a hobby, but a very unique one with unparalleled rights and corresponding responsibilities. Holders of an Amateur Station Licence are permitted to use more than 20 internationally agreed frequency bands right across the radio spectrum to carry out radiocommunication experiments using self-built or commercially-built equipment meeting the Technical Conditions set out in ComReg's guidelines. The same radio spectrum is occupied by countless other users for broadcasting, safety and security, geolocation, mobile phones, Internet of Things and lots more. The Amateur Station Licence give the holder far greater flexibility in terms of equipment type and permitted frequencies compared to other users. Therefore, we need to establish that we can safely operate an amateur station and in particular that we understand the regulatory framework within which radio amateurs are required to operate and the accepted operating rules and procedures. Furthermore we need to demonstrate that we have the requisite technical knowledge to carry out radiocommunication experiments.

The importance of retaining the *uniqueness* of amateur radio, including its experimental and self-training nature, cannot be over-emphasised. The bands currently available to radio amateurs were secured mainly at a time when the radio spectrum was not under the same commercial pressures as it is at present: with literally billions of devices now using radio frequencies, the competition for spectrum is intense, so amateur radio needs to continue to be seen as significant and distinctive if we are to retain what we have.

### Problem areas – Section A:

**Licensing Conditions.** Exam candidates need to have some familiarity with key aspects of the Amateur Station Licence Guidelines published by ComReg. Unfortunately, many of the questions on

permitted frequencies and power levels are being answered incorrectly. Other problem areas include the requirements for logbook keeping, the permitted content of transmissions between amateur stations and the additional constraints that apply to frequency allocations with *secondary* status.

**Operating Rules and Procedures.** Transmissions from an Irish amateur radio station can potentially be heard around the world, so it is essential that aspiring EI licence holders show that they are familiar with the operating rules and procedures used by radio amateurs worldwide. This is the area within Section A that the standard of answering has been the most disappointing in recent years. Knowledge of band plans is poor as is the composition of amateur radio call signs and the format of CQ calls. Candidates could benefit significantly from participating in club activities in the months leading up to an exam, or if this is not possible, some 'shortwave listening' on the amateur bands.

**Electromagnetic Compatibility and Transmitter Interference.** Understanding the methodology for coexisting with other users of the radio spectrum is a fundamental obligation for Amateur Station Licence holders. The exam questions for this topic include the use of filters to avoid interfering with other services or to minimise interference received from other users. Some of the answers indicate a very limited knowledge of the simple filter circuits typically used by radio amateurs, as well as how and where these filters should be deployed.

**Safety.** It's no surprise that the exam includes a number of questions to test a candidate's knowledge of safety. The standard of answering for this topic is generally good, however there does appear to be some confusion about the function of fuses and the selection of an appropriate current rating; other areas of weakness are around the most likely sources of RF burns from antennas, and the implications of non-ionising radiation emissions / ways of minimising such emissions.

### Problem areas – Section B:

**Electrical and Electronic Principles including Components and Circuits.** This section provides a test of a candidate's understanding of basic electrical and electronic principles and circuits. Ohm's Law and equivalent rules for inductors and capacitors might suggest that complex mathematical calculations may be necessary to identify the correct answer, but that is not the case, as the relevant multiple-choice questions are designed in such a way that anyone with an intuitive understanding of how resistors, inductors and capacitors perform in circuits should be able to identify the correct answer without difficulty. The standard of answering for these "quasi-mathematical" questions is very good. Less well understood is the usage of other components



(e.g. diodes, rectifiers, transformers) within circuits, the relationship between peak, peak-to-peak, average and RMS values, amplifier biasing or the consequences for a circuit of a high or low Q-factor.

**Transmitters and Receivers.** Many of the questions in this section are about the building blocks of transmitters and receivers and the nature of the output signal from CW, SSB, AM and FM transmissions. These are areas that do not seem to be well understood by candidates; also questions on why and how signals are shifted to an IF (intermediate frequency) are getting a poor response. All we can suggest is that the Course Guide, which includes numerous helpful block diagrams, should be studied.

**Feeders and Antennas.** This is a very practical area, most radio amateurs will spend a proportion of their time experimenting with different feeders and antennas. Some of the candidates' answering on this topic is very good, but two areas that have caused particular problems are the expected impedance of different antenna types and the impact of the velocity factor on transmission lines. We also note that more than 40% of candidates in recent years have been unable to correctly identify the length of a half-wave dipole for one of the HF bands.

**Propagation.** This topic is of great interest to every radio amateur as it has an enormous influence on what we can achieve in our experiments. An understanding of the characteristics and propagation implications of the different ionospheric layers is one of the core themes within this topic, however when we review the answers provided in recent exams, it is clear that many candidates have not achieved a satisfactory understanding of this fundamental aspect of propagation. Other themes, such as angle of radiation, skip distance, the sunspot cycle and the causes of fading are better understood.

**Measurements.** This is the smallest topic in the syllabus, with just 3 questions in the exam. It is also the topic with the lowest level of correct answers – averaging just over 60% in recent years. Questions on measuring resonant frequency, on SWR meters, voltmeters and ammeters are being answered incorrectly. While some maths would be involved in calculating the answer from scratch for some of the measurement question, as in the case of the Ohm's Law questions referred to earlier, the multiple-choice questions in the measurements section are designed so that the correct answer should be obvious to a candidate who understands the underlying principles.

### Preparing for the next exam

The next Amateur Station Licence exam is due to be held in May / June 2018. Those preparing for an exam should ideally attend a course, however we recognise that courses for the Amateur Station Licence are few and far between. Radio club attendance with participation in club activities is the next best thing. For study material, see the "Licensing" menu at [www.irts.ie](http://www.irts.ie)

We suggest that candidates and tutors obtain a copy of

**Studying for the Harmonised Amateur Radio Examination Certificate**, available on [www.irts.ie/downloads](http://www.irts.ie/downloads) This document contains ...

The **exam syllabus** – essential reading! As well as outlining the topics to be covered in the exam, the syllabus includes –

**Notes for candidates** – designed to assist candidates and their teachers with their work in preparing for the exam by suggesting certain areas worth focusing on

**Four pages of Annexes** – containing key information very relevant to the exam questions

**Sample paper** – a useful guide to how the questions are presented in the exam

**Examination Reports** – four previous reports published between 2007 and 2016 are included. These reports include observations and advice that should be of assistance to anyone studying for the Amateur Station Licence

An online **Course Guide** is available at [www.irts.ie/course](http://www.irts.ie/course) A zip file of this guide is available on the downloads page at [www.irts.ie/downloads](http://www.irts.ie/downloads) for offline viewing. Also available on the downloads page is a **Document Pack** which includes some of the reference documents used in preparing the regulatory sections of the Course Guide.

We also suggest that candidates look at some of the material in the links on the IRTS **Radio Theory Links** page at [www.irts.ie/theory](http://www.irts.ie/theory)

For those who prefer printed material, there are a number of online bookstores specialising in amateur radio material, including those run by PW Publishing and the Radio Society of Great Britain. Note, however, that as the UK amateur radio licensing system is based around three separate examinations [Foundation, Intermediate, Advanced], material on all three examinations would need to be covered by candidates studying for a full HAREC-level examination.

IRTS Licence Examination Board  
February 2018

### 37<sup>th</sup> Lough Erne Radio Rally



The big traditional gathering of EI, GI & MI amateurs and enthusiasts - Sunday 13th May 2018

**Doors open 11.30**

SHARE Centre, Lisnaskea, Co Fermanagh  
(SatNav - BT92 0EQ)

Free Tables - Mark EI4HDB, 087 657 4668  
[MTMullaney@eircom.net](mailto:MTMullaney@eircom.net)

[www.learc.eu](http://www.learc.eu)



## Excerpts from the HX files

### Pat Fitzpatrick EI2HX - Excerpt 042

*Hello and welcome to Xtract 042 of the HX Files.*  
In this issue some more fun with the Yaesu FT 817.

#### Last time

In the last Echo Ireland I mentioned that a Pelican case might be purchased for the 817, but this was not to be. But do not worry dear reader, one of my sheds came to the rescue. The case turned out to be just the right size for the planned job.

#### The project

With a couple of outings of the 817 in the other case (photo opposite), it was found that a couple of extra pieces of foam were needed to keep thing from moving and, having to move things about to get at some of the switches, I thought about a rack system.



Some time was spent in looking in a few of the local hardware stores at the various shelving units for sale and for their suitability for the project. Some of the shelving was too heavy for the job as the 817 is a light radio and the case to be used is also heavy enough even when empty. Forgetting about the metal work for a while, some cereal boxes were used as templates for the shelves (these would do as and when I decided what to use for the shelves) and the card was cut to size and some holes and slots cut into the card to accommodate the various cables and leads. It was easier to cut some card than some metal or wood. Packing away the parts sourced after day one of the parts hunt I noticed a length of threaded bar and an idea of using it as a way of mounting the shelves together came to mind.

#### Day two

I decided to use some wood for the shelves and the threaded bar as the frame work for the unit to hold everything together. Not wanting to have the unit knocking about inside the case during transit some careful measuring was done to make sure of a tight fit and to prevent any harm being done. I mentioned earlier the possibility of using some threaded bar for frame work and some wood for the shelves; well that was the route I went as you can see in the photos.

Some MDF was used for the shelves, and when cutting it care was taken to keep the cut close to the marks, with the cutting done the placing of the parts was to be sorted. Five pieces were cut as these would become the shelves and the top and bottom of the unit and after deciding to use the bar a couple of lengths of a smaller size, and a bag full of matching washers, regular nuts and for the finishing touch some domed ones for either end of the unit as seen in the photo.

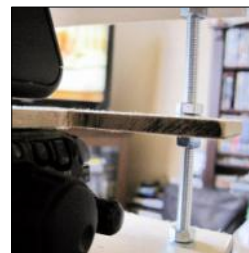


Having decided on what went where in the unit it was now time to use the cardboard cut-outs and cut the details into the

shelves. One shelf was marked out for drilling and then they were stacked on top of one another and drilled through in one go so they would all line up and fit nicely into the case.

#### Putting the kit together

The first thing done was to just put a top and bottom shelf in place and do a dry fit of the unit in the case. It was a bit tight at first and there was some twisting to get everything in line and a rub of some sandpaper to knock the corners off. Starting at the bottom with the placing of the nuts and washers and the first shelf the battery (7 amp-hour) was held in place by some sticky-back Velcro, some more nuts were spun down and the next shelf on top of them. The plan was that I was not using some tubing as spacers but to use some nuts and washers above and below each shelf to hold everything firmly in place, as seen in the photo above. The rest of the shelves were slid down the bar held in place and the rest of the parts (radio, AATU and extension speaker) attached with some sticky-back Velcro to the shelves.



Although the speaker has a shelf of its own for the moment this will change as and when the transverter(s) are bought and fitted to the unit.

#### In use

With everything tightened up and placed in the case off I went for a couple of tests and pictures. The photo below shows the station ready for the contacts, and, as you can also see in the photo, the case is now my seat. The collapsible bench used for the portable station happens to have some grooves running along its length and by sheer fluke the domed nuts on the bottom of the rack fit into grooves and slide along the bench, and the tracks keep the unit from falling off. The aerial used on the day was a fishing rod type of aerial with a height of six meters.

That is all for this issue of Echo Ireland.

*Best 73 and may your signals be 5NN. Pat.*







## Amateur Radio in EI (a personal view... Not preaching to the converted!)

### Brian Whelan EI8EJB

In Ireland (EI), there are currently six different amateur station licences that can be obtained.

- ✦ Amateur Station Licence
- ✦ Amateur Station Club Licence
- ✦ Amateur Station Automatic Station Licence
- ✦ Amateur Station Additional Authorisation
- ✦ Amateur Station Special Event Licence
- ✦ Amateur Station Visitors Licence

The basic Amateur Station Licence can be sub-divided into the CEPT 1 and CEPT 2 licences. To obtain the Amateur Station Licence, the applicant must first have passed an examination to the ECC T/R 61-02 HAREC standard. This will allow the applicant to apply for a CEPT 2 licence, but with the additional successful completion of passing a Morse examination, the applicant can apply for a CEPT 1 licence.

One thing must be made clear at this stage; when an Amateur Station Licence is granted, the actual licence is for the radio equipment, not for the applicant! I am not EI8EJB, I am merely the licensee holder for the licence that my radio equipment possesses at the licensed address, my radio equipment call sign being EI8EJB. The same applies to all Amateur Station licensees in the Republic of Ireland. We are not our call signs; but our radio equipment is... Strange, but true!

Under current legislation, namely the Wireless Telegraphy Act 1926, if you possess any wireless apparatus, whether or not it's powered up and in use or not, unless that apparatus is specifically licence-exempt, you *must* be in possession of a valid licence for that piece of apparatus. This is what our (our radio's..!) Amateur Station Licence covers. ComReg does not recognise any novice or intermediate licences as suitable qualification for obtaining an Amateur Station Licence as those licence types do not conform to HAREC standards, so therefore we will not see any form of Foundation or Intermediate licence framework established in the Irish Republic for quite some time.

Amateur radio operators don't know how lucky we are with regards to the amount of radio spectrum that we have assigned to us, not just in Ireland, but in the global arena! Compared with other radio user groups, amateur radio has huge chunks of spectrum set aside in both primary and secondary allocations. Other global user groups include broadcasting, maritime and aeronautical services. They have their own primary allocations, especially within the LF, MF and HF spectrum. Currently we have at our disposal a whopping great 261.7891 MHz of available spectrum just for us, and us alone to play with.

There are so many different paths that people take to enter into the world of amateur radio. Some people may have used other forms of radio communications, such as CB or PMR446 and other such licence-exempt methods of communications. The next logical step towards a more "professional" means of communications would be for those people to have read about or heard from some source about Amateur Radio. Curiosity will do the rest. Also, there are a great many shortwave listeners whose hobby includes listening to all LF/MF/HF utilities, broadcasting and of course amateur radio. Many SWLs are quite content in just

listening, but of course many have taken that additional step and added to their hobby by getting an amateur radio licence. Most members of the public who are not involved with radio communications may have heard the term "ham radio", but normally equate it with CB. They would not appreciate that the amateur radio licensee has to take an exam and must be in possession of a licence to take part and transmit.

Some people enter the hobby may already have a professional role in radio communications, such as marine radio officers, air-traffic-control operators or those involved in the military or emergency services communications, all of whom would be familiar with amateur radio by virtue of their own training and experience. People that are involved in related hobbies, such as electronics, astronomy or radio-controlled modelling could very well cross paths with licensed amateur radio operators, in fact many people involved in those very hobbies may well be licensed already.

There is no doubt that the typical amateur radio operator in Ireland is of a "certain age" group - in the 40-plus range. If this trends continues, it will not be too far into the future when the ageing amateur radio population becomes extinct with no younger generation to fill the vacant gap. Not only will the actual numbers of amateur radio licensees be reduced, but gone too will be a host of experience built up over decades. There are many things that just cannot be learned from reading books; hands-on experience of antenna construction, radio construction and technical know-how needs to be passed on to the ones coming behind (if any!).

Also, there is a huge gender imbalance in the hobby. Currently in Ireland, there are approximately 29 females licensed of the 1,846 current licences in Ireland (that's a whopping 1.6% of the EI amateur radio population). Internationally, the hobby has historically always been a "Boys Club", but if the amateur radio population is to survive, methods of attracting the other half of the global population should be sought.

In years gone by, we had the two licence types, the A licence and the B licence. The B licensees were only allowed to operate from 50MHz up and even then, bands like 50MHz and 70MHz had to be applied for separately and not always granted! Upon getting an A licence, there was a probation period of one year where the new licensee could only use CW or if they received the appropriate number of QSL cards to confirm operations, they could then proceed to use SSB in normal operations. Many of these probationary licensees took to operating during their first year on the VHF and UHF bands to "pass the time" until they were granted full A licence status. The VHF and UHF bands were never as busy as they were back then. It was the norm back then on 2m to have to look for a clear channel on simplex and repeaters were always busy from early morning until the wee hours of the next morning. Times have changed indeed.

By its very nature, the hobby is predominantly a solitary one. If the operator's sole interest is in HF operation, for example, in general they tend to concentrate less on the interaction with other local operators as they do not form a

requirement for HF operations as such. There may be a radio club in their area, but these are normally confined to urban locations. Whether or not the individual joins their local club is totally a matter of personal choice. There are a great many operators who do not, nor ever intend on joining a radio club. Perhaps they see no benefit to membership of a club, as perhaps their sole interests lie in a particular aspect of the hobby, such as only operating on HF.

Then there are those who only operate on VHF or UHF and whose operations are relatively local, hence a link is established with other similar-minded individuals in their locality and possibly a requirement may arise for the installation of a repeater to increase coverage. This can then lead to the formation of some sort of club, as the only way that a repeater can be licensed is from an application made by a club. Repeaters have been in existence in Ireland since the late 70's and have provided and continue to provide a wonderful service for the many people who have used the facilities. Perhaps many of the new (and not so new...) Amateur radio operators do not realise the efforts, time and expense that goes into establishing and maintaining a repeater. First off, there is the actual hardware costs of the licence, a transceiver (or separate transmitter/receiver system), the repeater controller, the duplexers, the antenna feeder and antenna(s) as well as mounting hardware, Internet connectivity and running costs, etc.

Then there is the repeater site procurement; historically, repeaters were always placed at high site locations, such as commercial radio & TV transmitter sites, so as to provide the best wide area coverage. Site rental can be very prohibitive if commercial rates are applied at these high sites where space is at a premium. If things go well and a high site location is arranged, the next cost involved is that of actually rigging the antenna(s) and feeder by professional riggers who have permission to climb the commercial masts. Then there is the running costs of electrical supply and repeater maintenance... The list goes on! Repeaters do not appear and come on air by magic! As time goes on, the stand-alone repeaters can now be linked to other repeaters to provide an even greater footprint coverage for the user. Repeater networks like this are happening right now in EI. Clubs can also be a focal point of taking part in Field Days and Special Events, as well as possibly putting on a public display of amateur radio to entice new blood into the hobby.

The biggest club in the country of course is the Irish Radio Transmitters Society and while membership of the IRTS is by no means obligatory, the IRTS has many benefits for the amateur radio operator and Short Wave listener; QSL Bureau, News Service, a national and international voice for Irish operators, provides licence course material and corrects exams sat by prospective licensees. All provided on a voluntary (and mostly thankless!) basis, of course!

Apart from putting on an actual public demonstration of amateur radio (setting up a working station at a venue where the public footfall can get to see amateur radio in all its glory with both analogue and digital stations incorporated into the demonstration to entice young and old alike), the only way to realistically (and cheaply!) advertise your radio club is to utilise the various flavours of social media; YouTube, Facebook, Twitter, email, etc., which are all suitable methods to attract the interest of an audience, especially with the internet-savvy younger generations.

YouTube videos showing off your club activities in particular

can attract the curious to venture to visit a club meeting. This first visit should be dealt with and handled in an appropriate manner by both the committee and members alike; you cannot scare off the prospective club member with silly, unprofessional behaviour or language. Neither should the newbie be discouraged with tales of how hard getting a licence can be, or by just how expensive equipment can be! No, those tales can be introduced at a later date once the newbie has been "hooked". It might be hard getting a prospective new member in the door, but it is much more challenging to retain that new member after that first visit.

The internet has all but killed off the magic of personal radio communications. When attempting to demonstrate something like EchoLink as a method of communicating at great distances with a small handheld transceiver, it is hard to trump the fact that someone may just take out a smart phone and then proceed to Skype or FaceTime someone privately at an equivalent distance as the EchoLink contact.

Why then bother using amateur radio as a method of keeping in contact with mostly strangers in distant places when a phone can do exactly the same thing, only quicker, more privately and with a better connection rate? People of a certain pre-Internet age would be among those who may have been initially fascinated by being able to talk with someone on the other side of the globe by radio. I know I was. To answer that question, picture this: What happens then if, *or when* the internet fails as a backbone of communications? Not only will the Skype and FaceTime functions be gone, but so too will systems like EchoLink. Many modern wide-area communications systems rely on some form of backhaul or backbone to carry radio traffic to and from the different radio sites or control rooms used in that particular network. These backhauls are currently using fibre or Internet-based connectivity to get the traffic from a distant remote hilltop radio site back to a control room and onwards to other users/sites. Until relatively recently, this backhaul function comprised of radio links using dedicated spectrum in VHF, UHF and SHF. Many of the mobile phone operators still use microwave as their method of connecting non-urban located sites for backhaul. It is rare to see a GSM/UMTS base station mast without some form of 38GHz microwave dish. But more and more, the internet is being used to connect to and from the transmitter sites.

#### *What if it all goes wrong?*

What if, in the case of natural or even manmade disasters, internet links get broken, fibre cables get damaged, power outages occur? How do networks continue to survive? Most likely, they don't. This is where stand-alone networks, such as mesh-style networks used in amateur radio come to the fore. A self-sufficient, self-healing mesh network, totally non-dependant on internet infrastructure or even public mains electrical supply, can be implemented in a very short time to establish emergency communications on a local or wide area coverage basis, depending on the number of physical nodes or mesh stations involved.

Our VHF and UHF bands can be used in an emergency to provide local and regional communications. HF will always be there as a method of providing longer distance communications, despite propagation, as some band will always be open to somewhere, messages can be relayed and so on, and harking back to the halcyon days when relaying messages was an amateur radio commonplace, especially in the US. When that internet-free day comes, the magic of radio will come flooding back to its former glory...



The earliest digital mode used for communications was CW. The on/off keying are simply logic states which can be used for message transfer. Ever since the invention of D-STAR in 1998 and its publication in 2001 in Japan, more and more digital voice modes have become part of the amateur radio operator's arsenal. DMR, as a commercial standard, was introduced in 2005 and subsequently "hi-jacked" by the amateur radio community as DMR repeaters and networks were rolled out in a similar manner to D-STAR. Then other digital voice modes were created, such as Yaesu System Fusion, so currently we have quite the mixture of digital voice and data modes to choose from, especially on VHF and UHF.

It is becoming apparent that amateur radio licensees in EI are using this digital technology because clubs are now beginning to invest and set up multimode repeaters, hot spots and gateways to allow people the choice of using DMR, D-STAR, Fusion and even P25... Oh! And not forgetting analogue of course! As for the people who say "that is not REAL radio"... that is exactly what was said about EchoLink, and before that, FM & SSB, and before that, AM, and before that... If I pick up a handheld radio and I can communicate with an amateur radio operator in Japan by using a DMR hotspot, I am using radio. End of story. (*Editorial Note - some believe that if we can't contact one another without the internet, then radio is but one component in the communications link—amateur hybrid communications perhaps?*)

I have now lost track of the huge plethora of digital modes that are currently being used on the HF bands; originally we had that wonderful digital mode CW; then we had other modes introduced such as RTTY, Packet, SSTV, AMTOR and PACTOR. Then, as home computing became fashionable, the floodgates opened! Many people have heard, if not used, modes like the different flavours of PSK, but also the MFSK modes like Olivia, Contestia, JT65, JT6M, FSK441 and more recently, FT8, which has become the darling of the MFSK modes! The lesser known or used modes include the likes of the formidably-named Hellschreiber and THROB (!?! ) as well as MT63.

All of these digital modes can be heard whistling and twittering away on the HF bands on what would appear to be on single spot frequencies, but these single frequencies are in fact bunches of the very narrow bandwidth modes, 31 Hz wide in the case of PSK31. The big selling point of using modes like these is that they are low power and very weak signal modes where even if the DX station's signal cannot be seen or heard, the digital mode software can pluck it out of the super-low signal to noise ratio, providing a viable two way communications link despite what would be apparently poor propagation.

So, to summarise, amateur radio in EI; the numbers of licensees are not waning, nor are they jumping into orbit either. Other countries are seeing increases in numbers of amateur radio licences, but we remain pretty stagnant in EI. We, as individuals or in groups or clubs, need to try to advertise or promote the hobby in our own localities, in schools, colleges, in public areas, in media, anywhere really. There is no such thing as a bad publicity (although certain celebrities may not agree...) We need to encourage new members into this wonderful hobby/way of life.

So get on the air; To coin that phrase "Use it or lose it" in relation to keeping active on air, dust off that HF transceiver, charge up that handheld, get out mobile, most of all be active and get talking and promote the hobby by doing and be seen doing ...

## Irish Radio Transmitters Society



### Annual General Meeting April 15<sup>th</sup> 2018 Galway Bay Hotel, Salthill, Galway

Members are hereby notified that the Annual General Meeting of the Irish Radio Transmitters Society will be held at 2pm on Sunday April 15th 2018 at the Galway Bay Hotel, Salthill, Galway.

#### Committee Nominations

Rule 23.1 requires that the committee shall, at least 28 days prior to the Annual General Meeting, send to all paid-up members a list showing the nominees for the offices of President and Vice-President and eleven committee positions.

The following are the Committee's nominations;

President Jim Holohan EI4HH  
Vice-President Pat O'Connor EI9HX

#### Committee

Harry O'Loughlin EI2KL  
Steve Wright EI5DD  
Robert Brandon EI5KH  
Dave O'Connor EI6AL  
Brendan Minish EI6IZ  
Anthony Dolan EI6GGB  
Brian Canning EI8IU  
John McCarthy EI8JA  
Louis Ryan EI8KI  
Tom McDermott EI9CJ  
Declan Horan EI9FVB

The names of other members eligible and willing to serve as President, Vice-President or as committee members shall be added to the list upon receipt of nominations in writing, by any ten members in the case of a nominee for the Presidency or Vice-Presidency or by any two members in the case of a nominee for any of the eleven committee positions. (Rule 23.2)



# Contest News

Joe Ryan EI7GY

*contestmanager@irts.ie*

**IRTS Contest Results** (section winners are on page opposite)

## 80 Metres Counties Contest, 1 January 2018

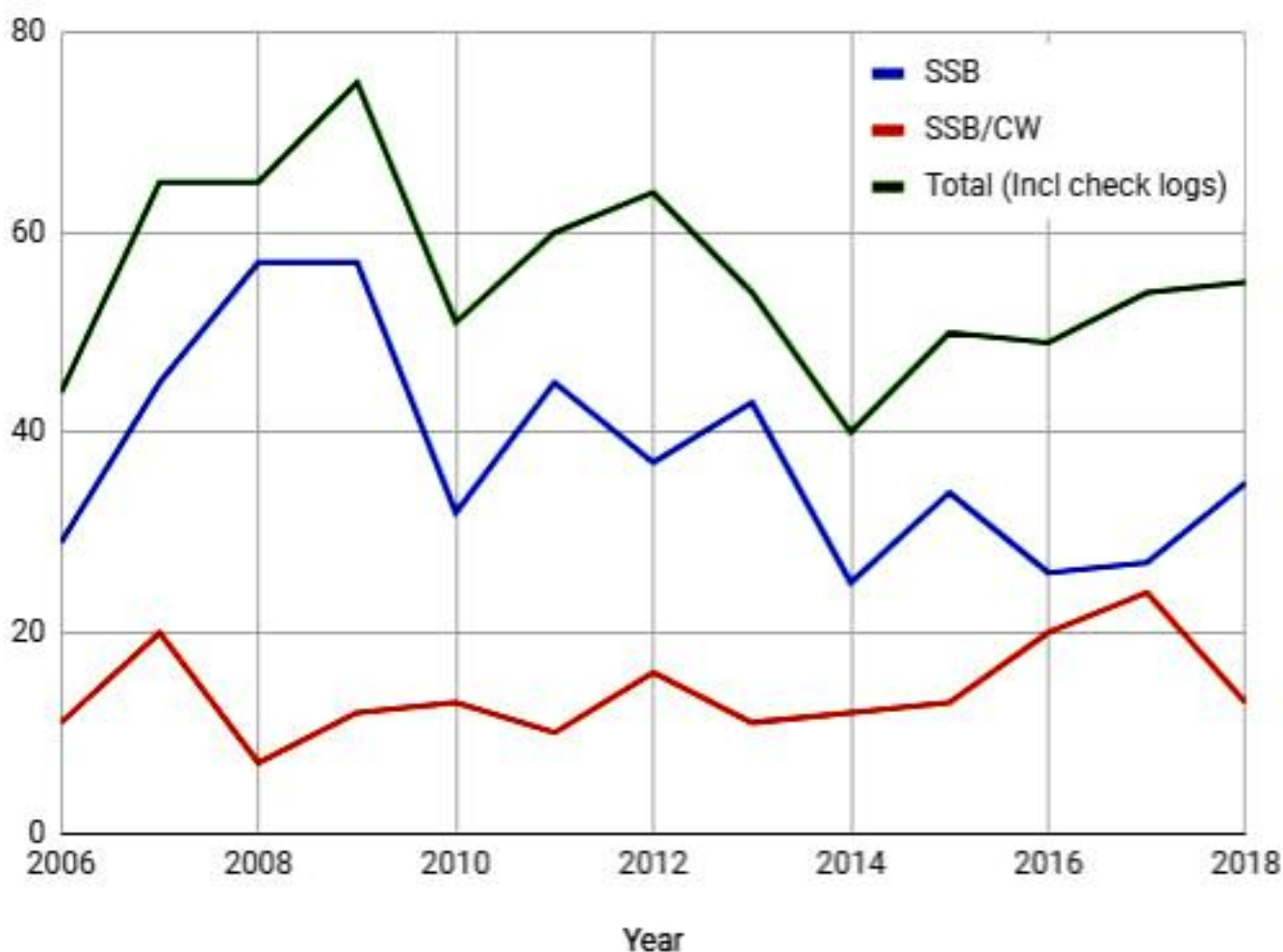
Our New Year's Day Counties Contest has been running since 2006 (ok, it took place on 2nd or 3rd January in some years, but recently has been a fixture on 1st January) and continues to be by far the best supported contest in the IRTS contest calendar. This year, 55 station logs were submitted for adjudication – 40 from EI/GI stations, the rest from overseas. The chart below, prepared by John EI7GL, shows the trend in logs submitted for this contest since its inception.

Leaving aside uniques (call signs appearing only once), the 2018 logs show that 73 EI and GI stations were active during the this year's event, along with 35 overseas stations – again leaving aside uniques. 25 EI and GI counties and 10 overseas DXCC entities were represented in the logs. Band conditions were good on the day, especially during the second hour, providing plenty of local QSOs as well as contacts with

overseas stations. For the first time in this contest, overseas DXCC entities counted as multipliers, however we retain the essential "counties" nature of the contest by requiring an EI/GI station to be at least at one end of every QSO, and through the 4:1 points advantage for QSOs with Irish stations. Most of the submitted logs included some overseas QSOs; overall, 20% of QSOs were with overseas stations.

There were 1875 QSOs in the submitted logs, this allowed 75% of QSOs to be cross-checked, identifying 62 logging errors. Just under half the errors arose because the call sign of the station worked was logged incorrectly, a quarter were as a result of an error in recording the serial sent, while just 5 of the errors were NILs (not in log). The remaining errors were due to the wrong county or mode being logged. While the error rate in this contest (3.3%) may be a little higher than the rate seen in some of the big international contests (where the equivalent figure would typically be below 3%) it is not too far off the norm.

**Numbers in the IRTS 80m Counties Contest on the 1st of January**





During this contest I spent some time listening *outside* the contest-preferred band segments and also in the segment above 3775 where the Band Plan indicates priority for intercontinental operation. I am pleased to report that, despite the fact that the permitted parts of the band were fairly crowded at times, I heard no EI or GI contest stations operating on prohibited frequencies.

## 2018 Contest Calendar

This year's calendar contains twelve contests – three Field Days and nine Counties Contests. The Counties Contests now include two 70 centimetres contests, both taking place just ahead of the 2 metres events on Easter Monday and the second Sunday in September, respectively.

## Forthcoming IRTS Contests

**70cm Counties Contest FM/SSB** – Easter Monday 2nd April 1.00 pm local time (1h)

**2m Counties Contest FM/SSB** – Easter Monday 2nd April 2.00 pm local time (2h)

**40m Counties Contest SSB/CW** – Sunday 6th May 12:00 UTC (2h)

## Links

Contest rules & calendar: [www.irts.ie/contests](http://www.irts.ie/contests)

Contest results: [www.irts.ie/results](http://www.irts.ie/results)

## 80m Counties Contest, 1st January : Section Winners

SSB Only Fixed, EI/GI Stations	EI4KH, Denis O Flaherty
SSB Only Portable, EI/GI Stations	EIØM/P, Mayo Radio Experimenters (ops: EI2GCB EI9JA EI9JS)
SSB/CW Fixed, EI/GI Stations	GIØRQK, Colin Williamson
SSB/CW Portable, EI/GI Stations	EI5KJ/P, Keith Crittenden
SSB Only, Outside EI/GI	G6MC, Neil Clarke
SSB/CW, Outside EI/GI	MØDDT, Colin Potter

## EI DXCC Single Band Status as at 26th February 2018

Compiled by Joe Ryan EI7GY

		160	80	40	30	20	17	15	12	10	6	2
10	EI2GLB	160	80	40	30	20	17	15	12	10	6	
10	EI2JD	160	80	40	30	20	17	15	12	10	6	
10	EI3IO	160	80	40	30	20	17	15	12	10	6	
10	EI7BA	160	80	40	30	20	17	15	12	10	6	
10	EI9FBB	160	80	40	30	20	17	15	12	10	6	
9	EI6FR	160	80	40	30	20	17	15	12	10		
9	EI6IZ	160	80	40	30	20	17	15	12	10		
8	EI7GY		80	40	30	20	17	15	12	10		
8	EI9FVB		80	40	30	20	17	15	12	10		
7	EI1DG			40	30	20	17	15	12	10		
7	EI4BZ		80	40	30	20	17	15		10		
7	EI8IU			40	30	20	17	15	12	10		
6	EI7JZ			40			20	17	15	12	10	
6	EI9HX			40			20	17	15	12	10	
5	EI4CF			40			20	17	15		10	
5	EI4GJB						20	17	15	12	10	
5	EI4HH						20	17	15	12	10	
5	EI6AL						20	17	15	12	10	
5	EI6JK		40				20		15	12	10	
5	EI8GS		80	40			20		15		10	
5	EI9E		80	40			20		15		10	
5	EI9GLB						20	17	15	12	10	
5	EI9JF		40	30			20	17	15			
4	EI3GV						20	17	15		10	
3	EI3CTB						20		15		10	
3	EI4GK						20		15		10	
3	EI4GNB						20		15		10	
3	EI5EV						20		15		10	
3	EI6FM						20		15		10	
3	EI6HB						20		15		10	
3	EI7GL		40								10	6
3	EI8JX		40				20		15			
3	EI9HQ						20		15		10	
2	EI2II						20				10	
2	EI4DQ											6 2
2	EI5IF						20		15			
2	EI7IG						20		15			
2	EI7JN						20		15			
2	EI8IQ						20		15			
2	EI9CN						20		15			
1	EI3EBB											6
1	EI3HA						20					
1	EI5FQB						20					
1	EI5GSB						20					
1	EI6S		80									
1	EI9CJ										10	
		160	80	40	30	20	17	15	12	10	6	2

## IRTS QSL Service Special Event Call Signs

The outwards and inwards QSL service is available free to IRTS members, whether individuals or clubs, for their own call and for special event stations licensed to them. The service is also available free to JOTA stations, irrespective of whether an IRTS member is the licence holder.

Operators of special-event stations should supply details to the relevant incoming QSL Manager listed on [www.irts.ie](http://www.irts.ie) and on the inside front cover of *Echo Ireland*

## QSL Outwards Manager

Tony Baldwin EI8JK is stepping aside as QSL Outwards Manager after many years of service. The Society is indebted to him for all his work and thanks him sincerely.

This will result in a change of the location to which outgoing QSL cards are sent.

Dave O'Connor EI6AL has agreed to take up the position in addition to his many other commitments to IRTS. Full contact details are on the web at the *IRTS QSL* page.

## IRTS Shop

IRTS Members can avail of a 10% discount on purchases from the RSGB on-line shop - [rsgbshop.org](http://rsgbshop.org). Members should select the “*Non-member's Price*” before placing the order and then enter the IRTS Discount Code during the checkout process. At this point the discount will be applied. IRTS members who are also RSGB members should continue to select the “*RSGB Member's Price*” and not use the IRTS Discount Code.

The current IRTS Discount Code is **IRTS2020XWW**— it will change from time to time.

[www.rsgbshop.org](http://www.rsgbshop.org)

# **EI DXCC Listings - Compiled by Joe Ryan EI7GY** as at 26th February 2018

Entries in Bold Type show changes since 3rd December 2017

<b>Mixed</b>	<b>213 EI1DG (+1)</b>	125 EI2JD	145 EI6HB	282 EI9FBB	170 EI6IZ
357 EI6S	201 EI9FVB	<b>101 EI2GLB (New)</b>	144 EI4GJB	<b>219 EI8IU (+6)</b>	168 EI7JZ
353 EI7CC	197 EI4HH	<b>101 EI6FR (New)</b>	139 EI9HQ	206 EI9FVB	167 EI6AL
348 EI6FR	179 EI7JZ		138 EI6AL	<b>191 EI6FR (+3)</b>	144 EI7GL
346 EI8EM	169 EI7IG	<b>80m</b>	<b>137 EI9CN (New)</b>	<b>168 EI2GLB (+4)</b>	140 EI6FM
345 EI7BA	127 EI9CF	310 EI6S	133 EI5FQB	164 EI6IZ	136 EI4GK
336 EI9FBB	<b>127 EI9E (+11)</b>	298 EI7BA	133 EI5IF	154 EI6AL	<b>133 EI7GY (+2)</b>
334 EI3IO	126 EI4BK	244 EI9FBB	130 EI3GV	151 EI2JD	125 EI9GLB
329 EI5GM	113 EI2KK	<b>194 EI6FR (+18)</b>	129 EI4GNB	140 EI6JK	123 EI4GNB
328 EI9O	109 EI2IH	171 EI2JD	126 EI3CTB	<b>136 EI1DG (+5)</b>	116 EI3CTB
324 EI2GLB	104 EI6HB	151 EI3IO	126 EI3HA	134 EI7JZ	116 EI9HQ
320 EI4II	100 EI3CTB	145 EI6IZ	115 EI7IG	128 EI3IO	112 EI4GJB
312 EI6IZ	100 EI3KE	<b>135 EI2GLB (+15)</b>	113 EI4GK	<b>118 EI7GY (+1)</b>	111 EI9CJ
312 EI8FH	100 EI3KG	123 EI4BZ	112 EI8IQ	110 EI9HX	111 EI9HX
308 EI8IU		<b>123 EI9E (+7)</b>	105 EI2II	103 EI9GLB	105 EI6HB
306 EI2HY	<b>Phone</b>	<b>111 EI7GY (+3)</b>	102 EI5EV	100 EI4GJB	104 EI3GV
306 EI4CF	354 EI6S	103 EI8GS	102 EI5GSB	100 EI4HH	101 EI2II
304 EI2JD	351 EI7CC	100 EI9FVB			101 EI5EV
303 EI2CR	346 EI8EM		<b>17m</b>	<b>10m</b>	
300 EI9FVB	343 EI7BA	<b>40m</b>	334 EI7BA	308 EI7BA	<b>6m</b>
297 EI7JZ	<b>339 EI6FR (+1)</b>	318 EI7BA	306 EI9FBB	284 EI9FBB	164 EI3IO
287 EI9JF	331 EI8AR	258 EI9FBB	<b>303 EI6FR (+1)</b>	262 EI3IO	150 EI9FBB
279 EI9GLB	324 EI9FBB	<b>257 EI6FR (+1)</b>	<b>251 EI8IU (+2)</b>	<b>232 EI2GLB (+5)</b>	118 EI7BA
269 EI8GS	309 EI3GV	216 EI6IZ	238 EI6IZ	<b>231 EI6FR (+2)</b>	111 EI7GL
268 EI4BZ	307 EI3IO	209 EI4CF	<b>216 EI2GLB (+6)</b>	215 EI9FVB	108 EI2GLB
268 EI6AL	306 EI9HX	<b>208 EI2GLB (+17)</b>	210 EI9FVB	<b>205 EI8IU (+3)</b>	107 EI2JD
263 EI5JQ	300 EI4GK	206 EI2JD	197 EI2JD	199 EI2JD	101 EI3EBB
262 EI2GX	<b>292 EI2GLB (+1)</b>	202 EI3IO	170 EI6AL	199 EI4CF	100 EI4DQ
<b>251 EI1DG (+2)</b>	291 EI9FVB	177 EI9JF	<b>167 EI7GY (+4)</b>	183 EI4BZ	
249 EI4HH	285 EI7JZ	154 EI6JK	162 EI4CF	180 EI4HH	<b>2m</b>
245 EI5GUB	284 EI2JD	151 EI7JZ	162 EI7JZ	<b>177 EI9E (+4)</b>	145 EI4DQ
243 EI6JK	<b>279 EI8IU (+2)</b>	<b>144 EI9E (+6)</b>	<b>156 EI1DG (+9)</b>	173 EI6JK	
<b>241 EI7GY (+4)</b>	279 EI9GLB	142 EI4BZ	155 EI9HX	<b>172 EI1DG (+2)</b>	
230 EI4GXB	275 EI4CF	129 EI8GS	148 EI4HH	171 EI8GS	
215 EI6FM	269 EI8GS	128 EI9HX	146 EI3IO		
214 EI5IF	241 EI6JK	<b>127 EI7GY (+7)</b>	146 EI9JF		
<b>214 EI9E (+2)</b>	225 EI9JF	125 EI9FVB	127 EI4GJB		
210 EI6IL	222 EI4HH	<b>124 EI8IU (+8)</b>	121 EI9GLB		
209 EI7JN	222 EI8FH	<b>122 EI1DG (+2)</b>	112 EI4BZ		
197 EI4IR	216 EI7GL	<b>118 EI8JX (New)</b>	108 EI3GV		
193 EI3HA	213 EI4BZ	117 EI7GL			
191 EI6HB	212 EI6AL		<b>15m</b>		
<b>190 EI9CN (+23)</b>	211 EI6FM	<b>30m</b>	333 EI7BA		
189 EI9HQ	<b>210 EI9E (+2)</b>	332 EI7BA	<b>313 EI6FR (+1)</b>		
184 EI5EV	208 EI4GJB	258 EI9FBB	305 EI9FBB		
175 EI7IG	200 EI6IL	<b>257 EI6FR (+4)</b>	<b>264 EI8IU (+7)</b>		
174 EI3CTB	191 EI3HA	233 EI6IZ	<b>253 EI2GLB (+3)</b>		
170 EI4GNB	188 EI2CH	231 EI3IO	251 EI4CF		
162 EI5FQB	<b>188 EI9CN (+22)</b>	<b>183 EI2GLB (+24)</b>	249 EI9FVB		
160 EI4GZB	186 EI7II	167 EI9JF	232 EI2JD		
135 EI9CF	186 EI9HQ	156 EI7GY	227 EI3IO		
131 EI5GSB	177 EI5IF	<b>147 EI8IU (+10)</b>	223 EI6IZ		
128 EI8HA	177 EI9FE	127 EI2JD	202 EI4BZ		
127 EI9CJ	162 EI5FQB	121 EI4BZ	197 EI7JZ		
104 EI9GWB	160 EI2II	<b>112 EI1DG (+8)</b>	193 EI6JK		
103 EI3HDB	160 EI6HB	106 EI9FVB	<b>190 EI9E (+3)</b>		
101 EI7JQ	157 EI4GNB		<b>188 EI1DG (+6)</b>		
101 EI8JB	143 EI3CTB	<b>20m</b>	181 EI8GS		
100 EI3GAB	131 EI5GSB	340 EI7BA	172 EI9HX		
100 EI4GD	104 EI1DG	<b>338 EI6FR (+2)</b>	171 EI4HH		
100 EI4HQ	103 EI3HDB	329 EI9FBB	168 EI6AL		
100 EI8KF	103 EI6GGB	266 EI2JD	<b>155 EI7GY (+4)</b>		
100 EI9GGB	102 EI4DJB	<b>264 EI8IU (+9)</b>	149 EI8IQ		
	101 EI3IP	261 EI3IO	<b>139 EI8JX (+9)</b>		
	100 EI3GAB	257 EI9HX	139 EI9GLB		
		256 EI4CF	136 EI6HB		
<b>CW</b>		256 EI9FVB	132 EI4GNB		
343 EI6FR	<b>RTTY/Digital</b>	<b>255 EI2GLB (+7)</b>	125 EI6FM		
339 EI7BA	305 EI7BA	247 EI6IZ	<b>123 EI9CN (New)</b>		
333 EI7CC	<b>258 EI6FR (+6)</b>	223 EI7JZ	122 EI3CTB		
321 EI9FBB	<b>230 EI1DG (+3)</b>	217 EI9JF	120 EI4GJB		
309 EI6IZ	<b>218 EI8IU (+4)</b>	211 EI8GS	113 EI3GV		
305 EI8FH	<b>207 EI2GLB (+8)</b>	200 EI4BZ	109 EI7JN		
<b>301 EI2GLB (+11)</b>	195 EI8FH	<b>193 EI1DG (+3)</b>	107 EI5IF		
301 EI3IO	129 EI3CTB	<b>180 EI9E (+4)</b>	105 EI5EV		
293 EI4CF	121 EI6HB	173 EI9GLB	105 EI9HQ		
<b>290 EI8IU (+3)</b>	108 EI5IF	171 EI7JN	105 EI9JF		
287 EI2JD		<b>168 EI8JX (+13)</b>	104 EI4GK		
253 EI9JF	<b>160m</b>	<b>166 EI7GY (+5)</b>	104 EI7IG		
248 EI6AL	251 EI7BA	161 EI6JK			
247 EI4BZ	213 EI3IO	154 EI4HH	<b>12m</b>		
238 EI5GM	144 EI6IZ	151 EI6FM	325 EI7BA		
<b>233 EI7GY (+3)</b>	138 EI9FBB				
<b>220 EI8JX (+7)</b>					

## **DXCC Honor Roll**

<b>Mixed</b>	<b>Phone</b>
339 EI6FR/348	337 EI7BA/343
339 EI7BA/345	337 EI8EM/346
338 EI7CC/353	336 EI6S/354
337 EI6S/357	336 EI7CC/351
337 EI8EM/346	<b>331 EI6FR/339 (+1)</b>
333 EI9FBB/336	

## **CW**

337 EI6FR/343
334 EI7BA/339

## **DXCC Challenge**

2917 EI7BA	1176 EI4BZ
2534 EI9FBB	1173 EI7JZ
<b>2238 EI6FR (+63)</b>	1090 EI6JK
1964 EI3IO	1060 EI9HX
<b>1854 EI2GLB (+128)</b>	1059 EI5GM
1840 EI6IZ	1018 EI9JF
1766 EI2JD	
1720 EI7CC	
<b>1634 EI8IU (+80)</b>	
1531 EI9FVB	
1466 EI4CF	
<b>1256 EI1DG (+50)</b>	
<b>1188 EI7GY (+28)</b>	

## **The following Silent Keys were holders of DXCC Awards**

### **DXCC Honor Roll**

<b>Mixed</b>	<b>CW</b>
336 EI8H/365	109 EI4HM
331 EI2GS/340	
<b>DXCC</b>	<b>Phone</b>
338 EI2GS	300 EI8AU
300 EI2GS	116 EI6CPB
116 EI6CPB	114 EI4EX
	105 EI1CS



## Silent Key

**David Waugh**  
**GI3OBO / EI2HP**



All his many friends at South Dublin Radio Club (SDR) were saddened to hear of the death of David after a long illness, on Saturday 20th January 2018.

David was buried on Friday 26th January in Roselawn Cemetery, Co. Down.

Our deepest sympathy to his wife and family and his large circle of friends.

*May he rest in peace*

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## Silent Key

**Alex Barrett**  
**EI6AG**

We regret to announce the death of Alex Barrett EI6AG at the Bon Secours Hospital, Cork on Thursday February 1<sup>st</sup> 2018.

Alex, from Glounthaune, Co. Cork, was well known to older amateurs as the owner of Southern Electronics, the main dealer for Ireland for Storno Radio.

We extend our deepest sympathy to his wife Enda and four daughters and to his extended family.

*May he rest in peace*

## Silent Key

**Kevin (Buddy) Rock**  
**EI5JG**



On the 30<sup>th</sup> of January the death took place of Kevin (Buddy) Rock EI5JG after a short illness. Buddy, from Drogheda Co. Louth, was laid to rest in the Old Cemetery, Termonfeckin.

And if Buddy was writing this he would say "that'll do" for this notice as he was a no-fuss kind of man.

Buddy was a car bodyworks specialist all of his life and he took great pleasure in repairing the damage caused when your car fell off the road. He would talk about all the changes over the years as when he started the main part of the finishing of the job was using lead solder bars to fill out the body lines and then an assortment of heat and body files to the job. Having seen his work you would need little more than a heavy coat of primer to finish it for the final painting.

On the radio side of Buddy's life he had quite a lot of radios over the years. He had hands for anything and when he was looking for some aerials to put up he had a look at what some of his local radio hams were using and he said he could make them himself. This was not out of meanest, just the fact that the man had a great pair of hands. One such job he did was to make his own rotator, he acquired a small gear-

box with a 99/1 turn ratio attached to a small DC motor via a couple of toothed pullies and a camshaft belt. For the controller he started off with making a camshaft lobe out of a chopping board and attached it to the pole then he used a length of throttle cable with one end connected to the lobe the other end ran into the shack. In the shack the cable ran along the ceiling with the outer part of the cable removed and a pointer attached to the inner cable by turning the rotator the internal wire moved the pointer along the ceiling, he marked on the ceiling some compass settings and some locations so he knew where the beams were pointing - not that any kind of wind would shift it. .

I offer deepest sympathies to Buddy's family and many friends.

*Rest in peace old friend until we meet again. - Pat EI2HX.*

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## Silent Key

**Aidan Murphy**  
**EI5HW**

We regret to inform you of the death on 26<sup>th</sup> February of Aidan Murphy EI5HW of Dunshaughlin, Co. Meath. Aidan had been ill for some time before his untimely death at just fifty years of age.

Aidan was founder of the Ballooning and Amateur Radio Club of Ireland and he held both balloon and helicopter pilot's licences.

For many years Aidan and his good friends Seán EI7CV and Gerry EI9DZ had a club stand at Friedrichshafen through which they made worldwide friendships.

To his wife Alison, his daughter Aoife, his father Pat, his brothers Willie and Ronan as well as to his wider family and his many friends we extend our sincerest sympathy.

*May he rest in peace*

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## News from the Clubs and Contest Participation

We welcome regular contributions from all individual members and clubs affiliated to IRTS telling us about activities which can be shared with our members. We particularly welcome items accompanied by clear, crisp, photos, together with separate captions identifying everyone. Submission Guidelines are on the back of this edition of Echo Ireland.

**Radisson Blu Hotel, Ennis Road, Limerick**

Doors open 11:00 am; All are Welcome

**Admission fee €5 under 16 Free**



**Long Communications**



**Prizes**

**Bring and Buy**

**Bargains in Amateur Radio & Test Equipment**

See lists already submitted on [www.limerickradioclub.ie](http://www.limerickradioclub.ie)

Tables are free. Requests to [michaelkingston@eircom.net](mailto:michaelkingston@eircom.net)

A list of the items for sale can be submitted to Michael

[www.limerickradioclub.ie](http://www.limerickradioclub.ie)

**Echo Ireland - the Journal of IRTS**, the Irish Radio Transmitters Society, is published quarterly. The Society also publishes **EiNews** - a monthly newsletter.

Private advertisements from paid-up members are published free of charge.

Articles and event information for publication are welcomed. Send your manuscript to [newsteam@irts.ie](mailto:newsteam@irts.ie) as a word-processing file attachment, **not as a PDF**. Please do not attempt to format the document to look like a printed page. Images and illustrations should be embedded in the file *for position only*. If you do not also send your images as separate high-resolution files, they will not be used. Make sure to put captions for all images and illustrations at the end of the article, rather than embedded within the images or the main text of your article. Please include the full names and call signs of people included in photos and where necessary obtain their permission.

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**4-way Switch €79**



**SO239 Dipole Centre €10**

Receiving frequency  
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Gain: 3.4dB(VHF) 5.5dB(UHF)  
Length: approx. 1.7m



**Diamond high gain Airband aerial - €79.00**

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**Genuine Diamond vertical fibreglass aerials**

**F22**

**F22 2m Vertical - New €95**

6.7dB Gain : Max Power - 200W : Wind Rating - 112  
Height - 2.7m : Connector - UHF : Element Phasing 2-7/8!

<b>X-510N</b>	8.3/11.7 db	<b>€139</b>
<b>X-300N</b>	6.5/9 db	<b>€125</b>
<b>V-2000</b>	2.15/6.2/8.4 db	<b>€135</b>
<b>X-50N</b>	4.5/7.2 db	<b>€79</b>
<b>X-30N</b>	3/5.5 db	<b>€59</b>

